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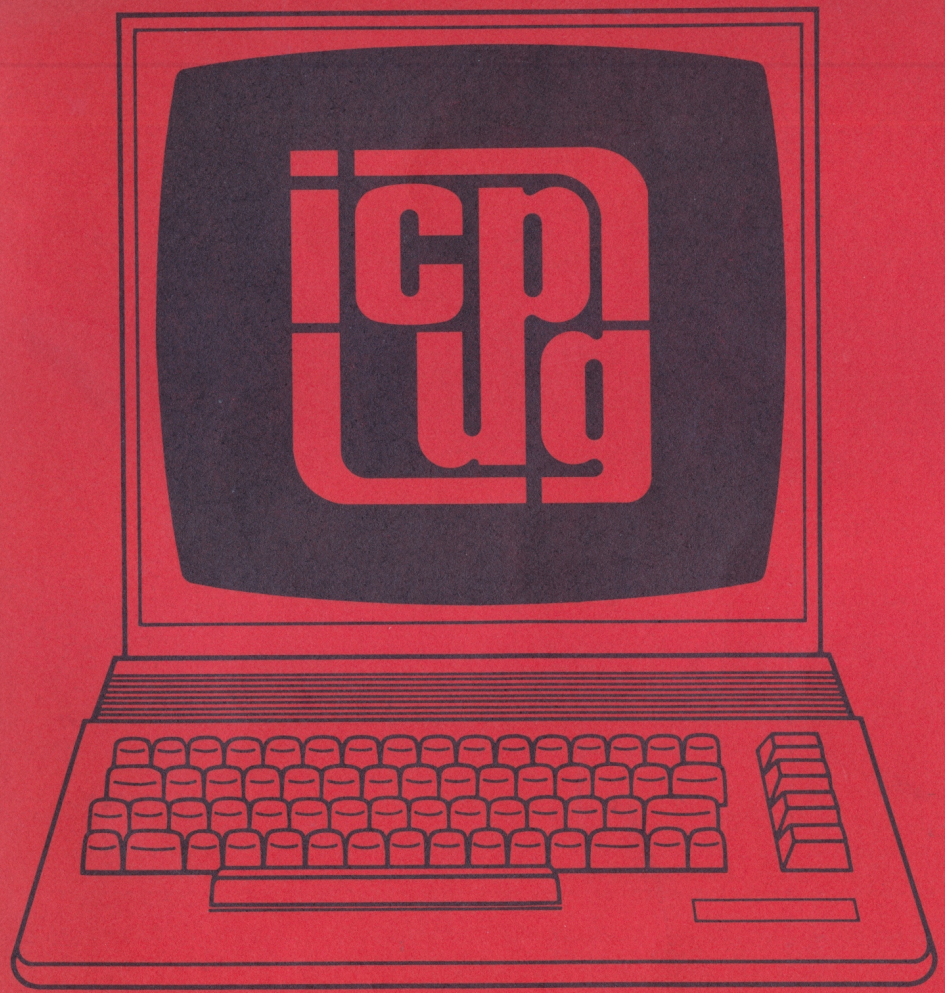

Europe's first independent magazine for CBM users

Volume 10 Sep/Oct 1988 Number 5

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ICPUG newsletter
Vol 10 No 5
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EDITOR'S NOTEBOOK

Looking at the contents page, one notices that several new names have appeared in the listing. This is indeed very encouraging. Even more new authors would have been included, except that some sent in disks which were in the wrong format. These were duly sent back for resubmission with our thanks, and subsequently got caught up in the postal disturbance.

Hence, the smaller than normal issue. Certainly, the quality of new submissions is improving all the time. A problem now facing the editors is the sheer quantity of Amiga articles now being sent in. Most are extremely well written but, unfortunately, the editorial team do not have the necessary knowledge and expertise to edit these articles properly. Some specialist help would improve the newsletter.

On a separate note, the deadline for the next issue is Monday 7 November 1988. That should be plenty of time to write your masterpiece, proof read it thoroughly yourself, and despatch it to the relevant editor. Don't forget to run your article through a spelling checker (this should avoid occurrences of bad dtat), save it in the correct format, and supply a hardcopy if you have a printer.

BB

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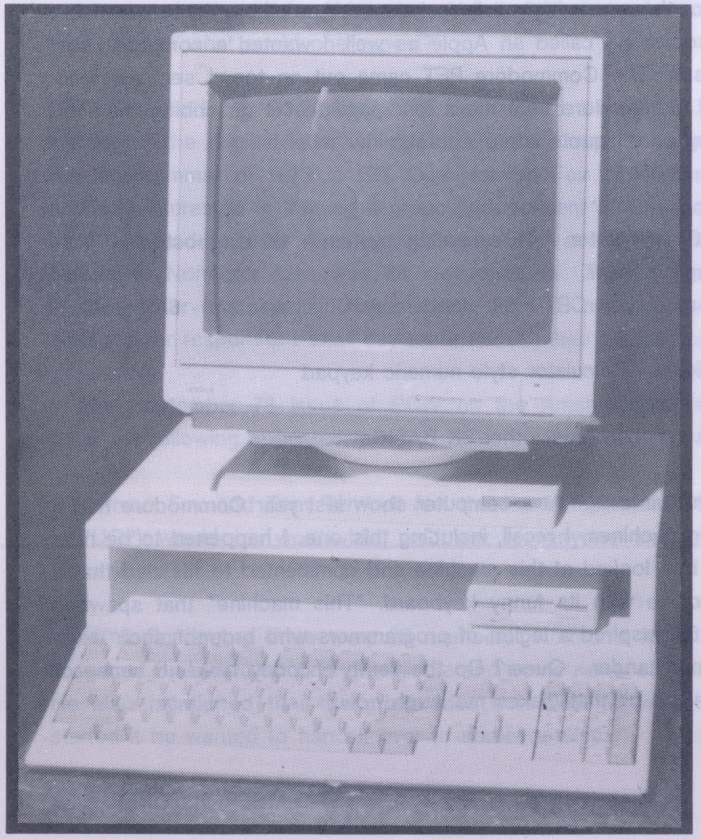

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10TH ANNIVERSARY OF I(C)PUG

by Brian Grainger

By the time this appears in print ICPUG will be celebrating its 10th Birthday. 10 years is a long period in terms of computer lifetimes and a lot has happened since those early beginnings. I expect our most recent members do not realise our history goes back that far. The purpose of this article is to narate the history of our group to the newer members. For those who have been around since the beginning it is an opportunity to have a nostalgic look back.

In the beginning was the machine. Around Christmas 1977 a popular magazine of the period, Electronics Today International (ETI), announced the imminent release of computers for the home. One was the Tandy TRS80, and the other was the Commodore PET. At that time, those who were interested in computers were either from a computer background who wanted one in the home, such as myself, or those running small businesses. Apart from these two machines there was something called an Apple as well. I wanted a computer, so I made a comparison. The Commodore PET came out on top. I sent away for the literature and Commodore sent me a four page leaflet describing the PET, and a form to buy one. I quote some extracts:

'RAM - 8K
ROM 8K BASIC Interpreter - 4K operating system - 1K diagnostics - 1K machine language monitor.
VDU - 9" high resolution CRT - 64 standard ASCII characters - 64 graphic characters
Keyboard - 73 keys - Calculator style numeric keypad
I/O - IEEE-4888 interface
BASIC - 20% faster than most other 8K BASICs'

Doesn't that sound fantastic? At a computer show last year Commodore had a display of all their machines, I recall, including this one. I happened to be near it when a young boy looked at this machine and commented to his dad that it was a queer machine with its funny keyboard. "This machine" that spawned the VIC and the 64, inspired a legion of programmers who brought such exciting games as Lunar Lander - Queer? Do the youth of today have no sense of reverence? This is the bit that makes me laugh now:

'The PET is a personal computer; it stands for Personal Electronic Transactor. It is very compact, measuring just 16.5 wide by 18.5 deep and 14 high and quite portable; it can be carried and used anywhere'

They neglected to mention that it was enclosed in a heavy metal box and was about as portable as my motor bike! Finally:

'Due to the unprecedented demand, all orders for the PET computer are considered bona fide only if accompanied by a cheque for £695 incl. VAT for the Commodore 2001-8 with 8K byte RAM.'

£695 in March 1978 was worth a lot but I, along with many others, wrote out a cheque. In April the machine appeared. I now had my own computer!

Around this time a number of dedicated computer magazines began to appear. In May Personal Computer World (PCW) was published for the first time, followed in July by Practical Computing. PCW published a review of the PET which was, in my opinion, biased against it. Still, the reviewer had only had it for a day so what could one expect?

On the second day God created the User Group. I have not been able to get a copy of the original letter which I now believe must have been published in the late summer of 1978 in ETI. One Norman Fox of Hertfordshire asked for anybody interested in forming a group, independent of Commodore, to write to him. Commodore were running their own 'club' at the time but the important feature of Norman's idea was its independence. Those who responded received a letter from him. In August there were 18 members, which he considered a poor response. I shall say more about these original members later.

In the September 78 issue of PCW on the Amateur Computer Club (ACC) page the following appeared:

'Norman Fox and Tom Turnbull feel that an independent PET User Group (PUG?) would be worthwhile, and ask for anyone interested to contact Norman....'

By 10th September there were 29 members. Norman's letter mentioned a few programs that were becoming available and some news of American magazines. He also mentioned that the group idea now seemed worthwhile and having started it he wanted to hand it over to someone else.

Very soon after this a certain Robin Leaver, a businessman in Bedfordshire, offered to hold a meeting at his premises on a Sunday afternoon. A questionaire was drawn up to discover what members were doing with their PETs. Norman's letter of 24th September indicated that the membership had leaped to 42, and included lots of other up to the minute news of software and magazines. It was clear that the prime requirement was a source of information.

Sunday October 8th 1978 arrived. At 14.00 hrs the first meeting of the group took place. As I recall there were about a dozen people present, including some who had travelled from Liverpool. It lasted over 6 hours. The group confirmed that it wanted to remain independent of Commodore. A number of items were discussed such as keytop wear (which was becoming a problem on the PET); how to turn off the screen; disk drives (which had not yet been manufactured); and printers (which had, but not specifically for the PET. Group members had managed to get them interfaced though). One of the things I remember clearly from this meeting was a certain Peter Dowson talking about a word processor he was developing at the time. That word processor is now known as Wordcraft, which is still being sold to this day on (IBM) PCs. This is an example of the type of people the group was attracting.

The next letter from Norman, in late October, indicated that one Ron Geere had agreed to edit a newsletter as a useful means of communication between the various groups around the country. Another meeting in London was set for 2nd November and a sub of £1 was asked for to cover postage costs!

In November 1978 the first ICPUG newsletter (as a magazine/journal/etc.) was produced. I am not sure when it came out as, for some reason, I never got a copy! It was 8 typewritten A5 pages, and a the cover with "IPUG" in bold letters. We had a name at last. Its only author was Ron Geere. Apart from news of products for the PET it included details of some ROM routines, cassette recording format and a report of the November meeting. At this meeting use of the PET user port was demonstrated by making music. Members from as far afield as Birmingham and Derby attended. The newsletter also reported that the next meeting would again be in Bedford in December.

At some point between October and the next newsletter a certain Mike Lake volunteered to be Secretary/Treasurer. In the January 1979 issue of PCW a letter from Mike appeared. It invited new members, informing them we were independent of Commodore, should we want to criticise them! It offered the opportunity to hold meetings around the country and a regular newsletter.

The second newsletter appeared along with a letter from Mike Lake. Membership had trebled to 140 and we all had an address list! Our first discount arrangement had been struck with LP Enterprises. Mike had even written to god (alias Jack Tramiel, the then President of Commodore) to ask that some action be taken on the keytop wear problem. Mike was also offering some software (ICPUG Renumber and a printer driver) at modest cost, which went to the group. The software library was born. Finally, a further sub of £2.50 was asked for. Funny how easy it was to get the subs in those days! The merest hint of a raise in subs now causes much discussion at an AGM. The second newsletter consisted of 12 pages with no space for a pretty cover. It included details of PET BASIC tokens, the keyboard codes and some more ROM routine details from a certain Jim Butterfield. Jim had by now made his first appearance in the UK at the North London Polytechnic and a report of this meeting also appeared. There was the usual product news and various chit chat.

Some time later a letter from Mike Lake indicated that we had regional group organisers for London and Liverpool and we wanted some more. The other problem we had was that as Mike was leaving his job we would lose access to a duplicator. How would we publish the newsletter?

The group had gone from strength to strength. In six months we had regional groups, a newsletter, a software library, discounts, and our own pages in the national computer magazines. Mike Lake edited a page in Practical Computing which started in February 1979. This consisted mostly of information from the newsletter but it was getting a far wider audience and attracting more members, although little programs always seemed to be published with errors. John Collins was also arranging with ETI for IPUG to contribute to an offshoot magazine called Computing Today. John was getting involved with Commodore and a letter from him to Mike at this time raised some amusing points. The new PET range (3000 series) had come out and printers were on their way. John pointed out problems with software on the new machines as the memory map had changed and the prototype arrived without documentation. I quote:

> 'While it is still physically possible to connect two cassette decks, there appears to be some doubt as to whether there is still a second cassette buffer! - the people at Euston Road (CBM) haven't yet managed to find it'

Things haven't changed much in 10 years have they? John also offered the opinion that the Commodore printers were not good value for money. He felt that Commodore were charging over the odds simply because other printers

could not handle PET graphics.

March came and with it another letter from Mike. We now had regional organisers for South East, North East, Hampshire, West and East Midlands. Meetings were happening all over. The ball was rolling. Those who love to moan about the price of things may also like to know that at this time 32K expansion memory for the PET became available, at £320! A 10 page newsletter also appeared in March. Nothing excitingly new although Ron was beginning to get contributions from other people, (such as me), but not yet attributing the source!

May 1979 was a landmark month for IPUG. The newsletter appeared in its hard card cover, published by a real publisher at last (Carlton Press). The cover was that classic plagiarisation of an early Punch frontage. It appeared on all newsletters until 1987 when it was cruelly replaced! Another innovation was the use of a (PETSOFT) text editor and (CMC) wordprocesor for text preparation. This newsletter had 24 pages. Ron was by now acknowledging the source of his comments and even publishing articles in their own right. Guess who wrote the first article for the IPUG magazine under his own (full) name? A certain Brian Grainger wrote something about how to make backup copies of a protected cassette program being sold at the time (PETSOFT Microchess), together with a routine to save memory lower than the bottom of BASIC. Julian Allason (of PETSOFT) had a piece on software piracy in the same issue. I understand that Julian Allason had a few words to say about my article but Ron managed to calm troubled waters although he never published similar articles again!

I mentioned earler that PCW published a biased review against the PET. May 79 saw the response by an anonymous PET user. Ron Geere followed this up with a letter and gave the group a free plug as well. Letters such as these were our means of letting people know about the group.

From this point on all communication with IPUG came via the newsletters, and I will now use these to relate the major events that fashioned our group. Since the first issue the newsletter has appeared bi-monthly without fail and is without doubt the most authoritative source of Commodore related material.

The July 79 issue of the newsletter had two points of note to add to our history. In April, Commodore, at the Cafe Royal, announced the 3000 series PETs along with printers and floppy disk drives. Second, the first mention of Mike Todd appeared! Ron published a routine from Mike Todd to save memory below the lower limit of BASIC as an alternative to the one I had written.

In August the first AGM was held, in Derby I think. Membership had grown to 500 and Mike Lake became our new Chairman. A committee was elected and a constitution drawn up. Pete Dowson became our Vice Chairman, Eli Pamphlett our Secretary, and Luke Gardiner our Treasurer. In the newsletter Mike Todd produced his first named input, a chart to show how BASIC programs and variables are stored. Mike's charts are superb in their clarity and it is a pity we only saw this and one further on keyboard layouts and screen memory.

The last newsletter of '79 was produced with the aid of disks, and included a Contents page complete with the immortal line: Europe's first independent magazine for PET users. It is still around today in its more generic form, rather than PET specific. Jim Butterfield made an appearance in London again, this time introducing the legendary monitor SUPERMON written by Brad Templeton.

1980 began with a rise in subscriptions to £6.50. The newsletter, which had grown in size, was becoming costly to produce. A large rise in subs was therefore required, but not without concern expressed by members. The March 80 newsletter included a review by someone who went by the pseudonym N.M.I. This chap spent a lot of time writing reviews. He appeared quite often in the newsletter. He does not appear in the newsletter these days although he still writes for it occasionally. Who is it? Well it isn't me because he reviewed something of mine once. By May the IPUG software library had increased to 12 programs! These were IPUG originals and it shows that even in those days not many people contributed! The newsletter also included an article, written by me, called 'Extra Machine Code Instructions'. I do not mention it because it has any great merit but because even today this topic is still being talked about (ref. Sep 87 newsletter).

This is a convenient point to break off, as in July 1980 there was another important event in the group's history. More about that next time. Finally a little point about that list of original members of I(C)PUG. I asked Jack Cohen to check who was still a member. The three longest surviving members of I(C)PUG, as deemed by their number on the list are:

No. 2 - Barry Miles
No. 6 - Tom Turnbull
No. 8 - Brian Grainger

***

LIBRARIES AND AMIGABASIC

by Mike Todd

Within AmigaDOS there's a huge number of routines which can be called by programmers. These are accessible using standard calls so that software will operate across revisions of the operating system; like the kernal tables of older machines, the Amiga's routines are set up as tables of JUMP instructions, but unlike the earlier machines, the positions of these tables are not fixed.

In addition, the Amiga's routines are divided into several different areas - called LIBRARIES - each of which has a specific area of responsibility. At the risk of adding some confusion, the word LIBRARY means different things depending on the context in which it is used. The major alternative usage is during software development, when compilers or assemblers use libraries to provide often-used routines for the benefit of developers.

In our exploration, the libraries we refer to are either contained in the operating system ROM (Kickstart RAM on A1000 machines) or on the boot disk in the LIBS: directory. Following a call to open a library (which must be done prior to accessing its routines) the operating system first checks if the library is already present in memory (either as part of the ROM or Kickstart, or previously loaded from disk) - if not, it will go to the LIBS: directory and load it.

Once a library has been located and opened, the address of its jump table is known. In the case of C/assembler programs, this location needs to be preserved; AmigaBASIC programmers only need to issue the LIBRARY command, the interpreter keeps a note of where the library is located.

Once a library has been opened, calls to its routines are made by accessing the table built into the library. This is achieved by using a system of offsets from the start of the table - however, the program needs to know the appropriate offset for the routine being called. Programmers in C/assembler have most of this taken care of during compilation or assembly; they just need to use the proper name for the routine and everything else is taken care of.

AmigaBASIC programmers also have this facility, since the offset information has been provided in a set of files known as .fd files. We then need to pass parameters to most routines and have them returned. All Amiga library routines take parameters from the 68000 processor registers. Only a few of these registers are used normally, with more complex data requirements being satisfied using tables whose address is held in a register. The results are passed either directly or as a table, and the value or pointer is returned in register D0.

For C/assembler programmers, all the information they need is supplied in

the huge documentation books they buy when starting out. Both C and assembler use STRUCTURES to set up the often needed complex tables, and they pass pointers to these structures to the library routines. These structures are set out in INCLUDE files supplied with developers packages.

Also in these INCLUDE files are many of the system constants that may be needed. For instance, they don't need to remember that PI is 3.1415..., instead, if they include the appropriate INCLUDE file in their source code, this will be set up for them, as will rather more esoteric values; the flag to set ham-mode is called HAM and is preset to $0800.

AmigaBASIC has a slightly different approach. In order to access the libraries, the offsets will need to be known, as will the details of what registers are to be passed. All this data already exists in the .fd files - for instance, there is a diskfont library, with a file called diskfont_lib.fd. This contains the following:

```
##base _DiskfontBase
##bias 30
##public
OpenDiskFont(textAttr)(A0)
AvailFonts(buffer,bufFlags,flags)(A0,D0/D1)
##end
```

The ## indicates command lines, which are are not particularly relevant. They indicate the name given to the start of the library table, where the table starts and the type of memory needed. The important information is the name of the library routine (for instance OpenDiskFont) and the registers used to pass information (here just A0 is used). The other information in brackets (textAttr) is the name given to the structure designed for holding the relevant data.

AmigaBASIC cannot handle these files directly. Instead, they need to be converted into .bmap files and a program called ConvertFD is provided for this purpose. This simply takes the library entries, specifies the offset from start of the library of the routine's entry point and which registers are used (as numbers 1 to 13, being registers D0-D7 and A0-A4).

Let's use the OpenDiskFont routine to select a new font from disk, and then set it up for use in an AmigaBASIC program. Firstly, ensure that the diskfont lib.fd file from the EXTRAS disk has been converted to a .bmap file. Run the program, ConvertFD, entering fd/diskfont_lib.fd as the name of the .fd file (assuming that they are in the fd directory, which itself is in the current directory - if not, you have to specify the path more completely). Give the output file as LIBS:diskfont.bmap which puts the new .bmap file exactly where AmigaBASIC wants to find it. We can now concentrate on the AmigaBASIC

program. First, open the library with the LIBRARY commands as follows:

```
LIBRARY diskfont.library
```

This will go to the LIBS: directory (failing that, the current directory) and find the files diskfont.bmap and diskfont.library, and load them. The library is available for use. Since the routine returns a value, we need to tell AmigaBASIC the type of value it is. In this case, as in all library calls, it is a LONG integer (a full 32 bits) signified by the suffix & (as per the AmigaBASIC handbook).

```
DECLARE FUNCTION OpenDiskFont& LIBRARY
```

The exact upper/lower case version of the library routine name must be given.

Now set up the parameters needed, and CALL the function. The parameter details need to be obtained from one of the programming reference guides. In this you will see that OpenDiskFont normally takes a STRUCTURE as follows:

```
struct   TextAttr   (
                    STRPTR      ta_Name;
                    UWORD       ta_YSize;
                    UBYTE       ta_Style;
                    UBYTE       ta_Flags;
                    );
```

This might seem like gobbledegook, but is actually a very precise way of specifying the variables required. STRPTR indicates that the first entry is a pointer to a string (ending with CHR$(0)), which is 4 bytes long, and which will contain the name of the font. The next UWORD (an unsigned WORD of 2 bytes) is the height of the font in pixels. UBYTE is an unsigned byte, and there are two - one specifies the style of the font requested (normal, bold, italic and so on) and the other is a flag used for other font options.

We must set these into a memory area, and pass a pointer to OpenDiskFont. The easiest way is to use a long-integer array and assign each element in turn with the table values, bearing in mind that each array element is four bytes long, with the most significant byte first. We could POKE the values into the array, but since it keeps moving around, life would get very awkward! Then we set up variables taName$, taYSize%, taStyle% and taFlags% contain our values. Finally, we pack the parameters into the start of the array - the start address of taNAME$ (derived using the SADD function) is easy since it is 4 bytes long and can go straight into the first array element; the other three parameters

need to be packed into 4 bytes - taYSize% we shift up two bytes (by multiplying by 65536), taStyle% occupies the 3rd byte, and taFlags% occupies the last.

```
  DIM textAttr&(2)
textAttr.ptr& = VARPTR( textAttr&(0) )

  taName$ = ruby.font + CHR$(0)
taYSize% = 8      taStyle% = 0
taFlags% = 0

  textAttr&(0) = SADD (taNAME$)
textAttr&(1) = taYSize% * 65536 + taStyle% * 256 + taFlags%
```

Now all we need to do is call the library function, passing the address of the first element of the array, so the function knows where its parameters start:

```
font.ptr& = OpenDiskFont&( VARPTR (textAttr&(0)) )
```

The OpenDiskFont function returns the address of the font in memory, and we need that for future reference. If it returns as zero then there was a problem opening the font and we cannot use it. All we've achieved so far is to load up the ruby/8 font! We now need to be able to use it in one of our AmigaBASIC windows. To do that we use the SetFont routine in the graphics.library.

Going through the same process, we find that SetFont requires two parameters (and no tables). The first is a pointer to the RASTPORT (the main structure which defines a window) where we are going to use the new font, and a pointer to the font we are going to use. The font pointer we already have in font.ptr&, and the RASTPORT pointer can be obtained using the WINDOW(8) function. Going through the same motions as before (assuming that we have already created graphics.bmap in the LIBS: directory) we code as follows:

```
  LIBRARY graphics.library
IF font.ptr& <> 0 THEN CALL SetFont (WINDOW(8), font.ptr&)
```

From now on, the AmigaBASIC command window will use the ruby/8 font. Indeed, you could use any of the available fonts, such as ruby/15 or diamond/12.

One should always close the font when finished. This is not absolutely essential, since it leaves the fonts hanging around in memory for other programs to use. However, it is bad practice to use up memory without good reason. Finally, you should issue a LIBRARY CLOSE command at the end.

You would usually want to use these fancy fonts when outputting to a window. In fact, it is the font in the currently active output window that is changed, and this obviously depends on the latest Window Output command. It should also be noted that many of the disk fonts are proportionally spaced. This may cause odd effects when you try to backspace/delete characters.

Another library that may be of use is the dos.library which contains all the basic file and task functions. While much of this library, like the other libraries, is beyond the scope of this short article, one function may be considered useful. This is the Execute function which will take a character string and execute it as though it had been typed in a CLI. It is simple to use:

```
LIBRARY dos.library
DECLARE FUNCTION Execute& LIBRARY

command$ = dir > ram:temp df0: opt a + chr$(0)
success& = Execute&( SADD( command$ ), 0 ,0 )
```

The variable success& is used to store the result of the operation (which in this case is always -1, or TRUE).

The two zeroes following the pointer to the command string would normally be pointers to input and output files. However, unless one were to specially create a file (or window) these must remain empty. As a result, unless there is somewhere for the command to send its output (which would be the case if AmigaBASIC itself had been launched from a CLI) then the system will crash as it tries to output to somewhere undefined.

When playing with libraries in this way, be warned that you are communicating with the system in an unprotected way. Pass nonsensical pointers, and the system will crash - set up tables which don't conform exactly to the required format and you could cause havoc. It is a valuable tool, implemented but rarely used by programmers. Through these libraries, many of the features of the Amiga which AmigaBASIC doesn't provide access to may be used.

POSTSCRIPT

This article is based on the example program LIBRARY that is included as a demo program on the Extras disk. Since writing this article, I have discovered a very interesting book which uses several library calls to provide useful features not included in AmigaBASIC. The book is "Amiga Tricks & Tips", and is published by Abacus. The cost is rather high (£14.95), but it is ideal for someone wanting to push beyond the bounds of AmigaBASIC.

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GETTING THE BEST FROM YOUR SOUND SAMPLER

by Martin Kay

The art of getting good quality sound samples into a computer has a lot in common with most other forms of sound recording. I have owned an AMIGA 1000 for 2 years and have designed both MIDI and Sound Sampling interfaces for it. The advice contained in this article, however, relates to general principles which should be applied to all samplers. Since many people will be sampling from tapes or records rather than starting from scratch with a microphone, I will work backwards through the various processes involved. If you find the first sections rather heavy going, don't despair! Come back to them when you've read the rest of the article.

Hardware concepts

The purpose of the digitising hardware (ie A/D converter) is to take an analogue audio input and feed the computer with a series of digital values representing the signal amplitude at that instant in time. Thus the sampling rate is the number of values (or samples) taken per second. The user has control over two aspects of this process, namely the sample rate and the input level.

Sampling Rates

Increasing the sample rate has two effects:

1) More memory will be used for a given period.
2) The frequency response will be higher. As a rough guide, the rate needs to be at least twice the maximum frequency to be recorded. Eg 10KHz sample rate gives about 5KHz playback bandwidth, or about Medium Wave radio quality. 20KHz rate gives 10Khz playback, approaching FM radio quality.

Try to compromise by choosing the highest sample rate which will still allow your sample to fit into available memory.

Setting the input level

Sound recording is a compromise between noise (hiss) and distortion, so correctly setting the input level is vital for the best results. With analogue systems, like tape recorders, distortion increases with increasing signal level. In digital recording the distortion actually decreases with higher levels, right up to the point of overload, at which point it increases rapidly. Digital distortion at low

levels is sometimes known as quantisation distortion and occurs when there are too few bits being used to adequately represent the signal. With both analogue and digital systems noise increases as the signal level falls, with digital noise being mainly due to quantisation. This is why Compact Disc audio uses 16 bit sampling to reduce quantisation effects to an acceptably low level, ie 256 times lower than the 8-bit D/A converters in the AMIGA are capable of.

With only 8 bits to play with you can't afford to not use some of them! It is therefore vital that the level is as high as it can be without actually overloading the A/D converter. Most software will display a graphical representation of your recording, and if the peaks are only half way up the graph, then you are getting twice as much noise and distortion as you could get with a higher input level. This applies to all 8-Bit samplers for the AMIGA. There are no good or bad samplers in this respect; it's the laws of science that we're all up against.

Hardware limitations

It would be wrong to believe that the quality of A/D hardware could never affect the recording. Possible hardware limitations are as follows:

1) Maximum sample rate. Some A/D converters might work fine at a 10KHz sampling rate, but may not be up to a 20KHz rate. The conversion time should not exceed about 30nS.
2) Poor linearity in the A/D converter. This will add distortion over and above any quantisation distortion. Linearity should be 0.5LSB or better.

Other sources of distortion

It's all very well me telling you to increase the input level to the A/D converter, but what if the device supplying the signal is nearing its limit? Turning it up will only distort the signal before it gets to the A/D. The first answer would be to look for another higher level output from the device. If there isn't one you will have to boost the level through something that will act as an amplifier. Ideally this would be a mixer unit which could match a wide range of inputs to outputs. More likely you'll have to improvise. For example, if the line output from your tape deck isn't high enough, see if there's a headphone output which is. If you get distortion when you turn that up, connect it to the Line or Aux input of another tape deck or amplifier and see if those outputs are high enough.

One final form of distortion is Aliasing Distortion. This is caused by the A/D converter being fed with frequencies higher than the bandwidth allowed by a particular sampling rate. When I stated earlier that a 10KHz sample rate gives a 5KHz bandwidth, I omitted to mention what happens if you feed in some higher frequency signal. Unfortunately the A/D converter can't simply ignore these

higher frequencies mixed in with the rest of the signal, and does its best to convert them. It fails, of course, but its mistaken attempts are added to the recording and are heard as a form of distortion. (It's the same effect that makes wagon wheels sometimes appear to go backwards in Western films - which are themselves an example of visual sampling at 24 frames per second.)

Anti-aliasing

The way to avoid Aliasing Distortion is to prevent these higher frequencies from getting as far as the A/D converter. An Anti-Aliasing Filter is a very steep form of tone control which cuts out the higher frequencies but lets the desired ones through, in theory at least. There is really no such thing as a brick wall filter which cuts out everything above a certain frequency and still maintain quality, as CD manufacturers have found out. This is why we have the current generation of 4 times oversampled players. These use a higher sampling frequency to avoid the need for steep filters, which is a good general principle. If you use the highest sampling frequency you will reduce Aliasing Distortion without needing a filter. If you want to use a filter remember that the filter cut-off frequency must be set to complement the sampling rate. If you change the sampling rate you must also change the frequency of the filter.

Some samplers have filters built in, but unless they change frequency to match different sampling rates, they are a rather mixed blessing. If your sampler does not have a built in filter, you may still be able to get the same result externally. After all, it doesn't matter where the filtering takes place. If you have a Graphic or Parametric Equaliser, try taking the level right down on the highest frequency band and leave the rest midway. If you have lots of bands and you know what your sampling rate will be you can be more precise. Eg for a 10KHz sample rate take out everything above 5KHz. If this leaves the sound a little dull compared with before, a little boost may be added just below the cut-off frequency (ie around 3-5KHz in our example).

The audio signal

Now we know how to get the best out of the digital side of things, we can turn our attention to the audio signal that we're going to be recording. The computer phrase Garbage In, Garbage Out is as relevent as ever. There is nothing magical about digitising sound that will make it appear better on the computer than it did before. The best we can hope for is that it won't sound any worse! So try to use the best quality source material. Make sure the rest of your equipment is lined up, tape heads clean, azimuth set, etc. Listen to the sound before you digitise it. If you can improve it in any way with tone controls or other effects units, now is the time to do it. A compressor/limiter is a very useful tool for squeezing the maximum levels into 8 Bit recordings.

Always remember that audio is very much like paint. You can mix bright colours together and get muddy ones, but you can never do anything with the muddy ones to get the bright ones back again. If you want the freedom to paint any sort of picture, your paintbox must have a set of pure colours. From these you can create any colour you want. So it is with audio. If you want total freedom to be creative you must start with sounds which are free from colouration. Colouration in audio terms refers to such things as frequency response variations, acoustic reverberation, ambient noise, and anything which distorts or distracts from the subject of the recording.

Recording with a microphone

In the real world of sound recording there will always be some colouration, but if you are making your own recordings there are plenty of things you can do to minimise it. Using a good quality microphone is no guarantee of good results. There is no one microphone which is best. I use £25 Tandy PZMs alongside £400 Sennheisers. Each can sound better in different circumstances. For getting clean, colouration-free recordings the same basic rules apply.

Forget any ideas you may have got from spy films about directional microphones cleanly picking out conversations from across the other side of a busy railway station. Pure fantasy, I'm afraid. (If only so many REAL film directors didn't believe them...) Get the microphone close to the source of the sound that you're recording. Proximity increases the volume that the microphone hears. This produces a higher signal level out of the microphone, which in turn means relatively less noise from the pre-amp. The other big bonus is that you will get more of the sound you want and less of any unwanted background noise or reverberation. For recording speech, use a distance of about 6-12 inches from the mouth. Keep the mic at about the same height, and pointing straight at the mouth. Microphone frequency responses are optimised for straight ahead (or on-axis) recording. The response from the side or rear will usually be considerably inferior, so always point the mic straight at the subject.

Windshields

If you have a problem with popping on 'p's and 'b's, use a foam windgag or a breath shield. (A pair of tights stretched over a coathanger held a few inches in front of the mic works well!) Outdoors a windshield is usually essential, and even a foam gag may be inadequate. You may have seen the size of the sausage-shaped gags used by TV crews. These are of a fine nylon mesh with a fake-fur type of covering. The mic is mounted in the middle by an elastic suspension system to minimise handling noise. Have a go at improvising some-

thing. Just remember that you're trying to slow the wind down rather than keep it out altogether, or else the sound won't be able to get in either! Put your hand inside it and try blowing through it. With your mouth up close you should be able to blow through it easily, but from 6 inches away you should hardly feel anything on your hand.

Reverberation

Unless you are out in the desert or on the moors, you are likely to be in surroundings with a recognisable reverberation characteristic. Certainly most indoor locations will exhibit some form of reverberation characteristic. It's what makes singing in your bedroom sound different from your bathroom, and your bathroom differnt from a concert hall. Hard surfaces in a room will increase the amount of sound echoed back and the size of room will determine the time before each echo occurs. Reverberation can be a welcome effect which enhances some types of sounds, but, like all audio effects, once you've got it on a recording you can't get rid of it! Also, you may not want quite the reverberation that you've recorded, so unless you're sure it's just what you want, try to record with as little natural reverberation as possible. As mentioned earlier, getting the mic close to the sound source will help to reduce the effect of ambient reverberation, but sometimes this may not be enough. If possible, choose a location containing as much sound absorbing material as possible. Thick carpets, soft furnishings, thick curtains and beds are all good materials to have around. If you have a choice of rooms, choose the largest room and avoid setting the mic near to an uncovered wall. Try using an upright mattress as an acoustic screen and setting the microphone near to it (but still pointing at the source!). If you can avoid making a recording which has any recognisable reverberation, then you will be free to create your own effects without anyone realising where you started. The disembodied voice can be made to sound as if it's anywhere by adding suitable ambience, but a voice in a cellar can never be made to sound like it's out in the countryside, if you see what I mean.

In Conclusion

These are not supposed to be rules which you have to follow to get good sound recordings. Sound should be judged by listening to it. Use your ears before your eyes. If it sounds good, do it! Never mind if it seems to break every rule, if you get what you want that's just fine. But if you're not happy with what you're getting and you don't know why it's not working out then maybe you should consider taking the analytical approach and check through the methods I've suggested. Remember, there is no magic in sound recording, but there can be a lot of fun!

NOTES AND ADVICE FOR CP/M USERS

By Chris Wright

The 1571, which is the drive most of us have, is completely programmable. Any disk format can be used, as long as it is compatible with CP/M. MS-DOS files can be read and written to. In the library we have two utilities that allow you to format in many different ways with different emulations and a program that allows you to read and write MS-DOS files.

We now have in the library a utility called C1571.COM which disables sector verification on disk writes. With sector verification active, regardless of the mode you are in, when the drive writes to the disk it will immediately read it back again to make sure the sector was written correctly. C1571.COM comes to the rescue, preventing the 1571 reading back the files. Consider the table below for speed comparisons.

SIZE	SAVE TIME	SAVE TIME (with C1571.COM)
50K	1.55 sec	1.05
2K	0.20	0.14
4K	0.20	0.15
6K	0.24	0.16
28K	1.02	0.36

This utility is a powerful piece of code, especially for those who use modems to transfer software as it lowers your BT account due to reduced on-line times.

Another new utility in the library is CONF.COM. This has new commands and on-line help much like the terminal users use MEX. CONF correctly passes parameters to MEX. New commands like CURSOR, allowing you to specify the type of cursor you want (ie square, underline, blinking, non-blinking). DATE is also incorporated, allowing you to set the date and time from within CONF. The MAP command allows you to print both character sets currently in memory. This is especially useful if you have redefined the character set using a character editor and want to examine both sets. There is a PARITY command for modem users and a POKE command. A REPEAT allows you to increase the rate of the key strokes or eliminate them altogether.

CP/M essential Public Domain programs

CP/M as supplied for the 128 is really quite a good implementation. You can redefine the keyboard, play with the screen colours, time and date usage for files and many other things. There are other programs that did not come with your systems disk and while they are not essential, they are certainly worth having as they make life so much easier. All the following items now discussed are in the library and available to members on disk CP/M STARTER 2. STARTER 1 is a collection of three single sided disks with many other utilities to help you understand and get the best from CP/M. However, back to the 'essential' PD programs.

CONF.COM size 6K. Von Ertwine was the guy who adapted the CP/M system to the C-128 and this is one of his gems. It allows you to parameterize the system to your equipment. Amongst other things you can set your printer type, screen colours, turn off the 40 column screen and sound (allowing the system to run faster), display the available disk space on screen, load and run programs such as C1571.COM.

C1571.COM size 2K. Also written by Von Ertwine. See above for details. It is only intended for the 1571 and so far I have found it absolutely reliable.

DIRR.COM size 6K. This lists any directory to screen or printer in alphabetical order with the file size labelled. It also accurately lists remaining free disk space. You won't use DIR.COM much once you've used this gem.

NSWEEP.COM size 12K. This is very similar to the DOS SHELL in native 128 mode but has more facilities. Everything from mass copying to renaming files and setting up file attributes. There is not much in the way of file handling that this utility cannot do. Highly recommended.

VDO25.COM size 10K. After using this ED.COM pales by comparison. This full screen editor could qualify as a word processor. It fully supports all aspects of printing (including headers and page numbering), macros, search-and-replace, and other good features. It can be used for everything from creating SUBMIT files to writing a 20-30 page document.

NULU.COM size 16K. This program allows you to extract member files from a 'libraried' file. Often, related files are colated into one large file with the extension .LBR You must have a program like this to get at the individual items. It has a myriad of functions to create, as well as disolve library files.

PCFILE.COM (Size of all related programs is 76K). Although not strictly a utility, I have included it as a fine example of Public Domain application software. It is a complete database program and although not a Superbase 128, it does many things and does them well. After defining your file layout and adding data, you can search for any record on any field, modify anything, list to screen, printer or disk file (any or all fields), even conditional lists on any field. You may also conditionally extract any records or fields of your choice.

The above files do much to alleviate what really is not much of a problem at all. For those still stuck, I have prepared a few pages that are available to members on receipt of a stamped addressed A5 or larger envelope. Rather like sending for 'help' in an adventure game.

CP/M and PIP

PIP comes on your systems disk and is the resident copy program. It is one of those utilities you find yourself using a lot within CP/M but many people won't make the most of the program.

PIP can copy single and multiple files from one drive to another, or you can use a single disk and do some disk swapping, using virtual drive E: for this purpose. A virtual drive is RAM configured to work like an imaginary disk drive. PIP can copy files an entire disk, copy a text file and send it to the printer or other output device. PIP can even rename files once the copying is complete.

To copy files on a single drive 1541/1570/1571/1581, all you need to do is the following. If PIP is on your disk type PIP E:=A:*.* if it is on a seperate disk boot it into memory and type E:=A:*.* Note the wild card used to copy the file names and extensions fields. Say you wanted to copy all the COM files across you would type PIP E:=A:*.COM or if it was all the files called DBASE but they had HLP COM EXE DOC TXT file extensions, you would type PIP E:=A:DBASE.* Easy isn't it? By using a virtual drive you would have a lot of disk swapping but the job would be done.

Those of you with two drives can use B: C: D: or even M: for the RAM Packs. This copies all the files you specified onto the disk in the second drive provided you formatted it first. In the library we now have an upgrade of FORMAT that allows you to specify which drive and what format you want. If you want to just copy one file across type B:=A:MYFILE.TXT

Renaming a file after copying is a useful feature. You can copy it to the same drive or a different drive. PIP must have enough room on the disk for the new file before it deletes the old file. Type PIP B:NEWFILE.TXT=A:OLDFILE.TXT This copies the old text file from drive A to drive B with a new name.

PIP even allows you to combine files by concatenating them into one file.

One thing you should remember is that PIP will stop when it comes across a control-Z in a file, which is usually the default end-of-file character. The three files named next should all be on one drive. Type PIP BIGFILE=FILE1,FILE2, FILE3 This creates one file from the three files.

You can use PIP to copy to and from devices in the system as long as the file has printable characters. Control-c aborts any PIP option. The logical devices you can use for PIP are CON: which is the console input-output device (keyboard), AUX: which is any auxillary input or output device, and LST: which is the destination device assigned to the list output device (usually a printer). Control-P is not the best way to send things to the printer and therefore try these examples. PIP LST:=CON sends it all to the console. You can terminate this by typing control-z. Send whatever you like to a textfile by typing: PIP a:TEXTFILE.TXT = CON: Again end this with a control-z. And finally to the printer type PIP LST:=A:MYFILE.TXT[T8] The T8 option in square brackets expands any tab characters to the nearest column that is a multiple of eight.

CP/M supports the RAM expansion pack as a high-speed RAMdisk (drive M:). Using the MEX terminal program (in the library), download programs and files directly into the RAM expansion. This survives a reset but not a switch off. This can really save time as the RAM expansion tranfers data at 1 megabyte a second. The 1571 with sector verification (C1571.COM) disabled isn't that fast!

The RAM expansion can be used for backing up disks. Load all the files into RAM PIP M:=A:*.* and place a formatted disk in drive A: . Reverse the process for an almost instant backup.

CP/M - using Submit files

SUBMIT.COM can automate just about anything you can think of. SUBMIT reads from a text file with the file extension .SUB a series of command lines you have previously typed in from the keyboard. It then creates a temporary file with the extension .$$$ which matches the .SUB file and, one by one, processes the commands and strips them from the temporary file. When the last command is dealt with, the temporary file is erased, which is why, unless you have a systems crash, you will never see the .$$$ in your disk directory. Apart from the imagination to create it, you need the means to do so and this is where ED.COM or better still VDO25.COM (ICPUG PD Disk) comes in.

When you first boot CP/M, the system looks for PROFILE.SUB. If it is not there you drop straight into the familiar A> prompt. If found the system starts to process the commands contained within. Remember that SUBMIT.COM must also reside on the boot disk for the PROFILE.SUB file to be interpreted. You must not cover the write protect notch either as SUBMIT.COM must write a

temporary file to the boot disk. It is also a good idea to make sure that there is at least 10K of free space on the boot disk for large batches of commands to be processed. PROFILE.SUB may be used to parameterize your system, or for running a specific program. You can set up individual boot disks for different applications such as booting up a modem, a database or word processor automatically. This is very handy and time saving, freeing the mind from remembering mundane repetitive commands. An example of a PROFILE.SUB:

```
SETDEF *,A: [ORDER=(COM,SUB),TEMPORARY=A[]
CONF PRT1=ASCII8,40COL=OFF,VOL=0
DATE SET
```

SETDEF is a useful program on your systems, more so if you have more than one drive or the RAM expansion. The first line sets a drive search chain. The *,A: portion says: 'First look for a program on the currently logged drive and if you don't find it look for it on drive A:' So if your screen prompt is B> and you call a program that resides on the A: drive, CP/M will find and execute it. The next part [ORDER=(COM,SUB) tells the system to first check for a .COM file with the name you specify, and then, if unsuccessful, execute a .SUB file with the same name. Therefater instead of having to type SUBMIT MYFILE you just have to enter MYFILE and provided SUBMIT.COM is on the same disk, away we go. The last section of that line tells CP/M to create the temporary file (the .$$$ file) on a specific drive. This is especially useful if you have a RAM expansion pack as you can specify TEMPORARY=M: and you will never have to worry about insufficient room for temporary files on a floppy disk.

The next line invokes a file called CONF which sets some controls to optimise the session. The first part tells the system what kind of printer you have ASCII or CBM and what secondary address used. My Xetec Super Graphics Gold attached to my Laser uses address 8 to get upper and lower case with no auto line feeds. The next part turns off the 40 column screen making the system speed up by about 8 to 10% and the final part turns off the sound, which also quickens the clock speed of the processor. The last line allows the setting of the time and date.

You can use a SUBMIT to backup some data files from onr disk to a different user area. Superbase users would Export the file. The syntax is:- PIP A:[G9]=8:*.DAT[A] This copies all changed files of type .DAT from disk B: to user area 9 on disk A: Using VDO25.COM I created this line and saved it as BACKUP.SUB Now, all I had to do was type BACKUP.

How about this? You can put program input into a SUBMIT file using the < character. This one is set up for the RAM expansion.

```
PIP
<M:=A:PIP.COM
<M:=A:ERASE.COM
<M:=A:PCFILE.COM
<M:=A:*.DAT
<M:=A:*.NDX
<
M:
PCFILE
PIP
<A:=M:*.DAT
<A:=M:*.NDX
<
ERASE *.DAT[C]
ERASE *.NDX[C]
```

This copies PIP and ERASE and PCFILE into RAM. Then it copies data files with the extensions .DAT and .NDX from A: disk into RAM. The final < is a carriage return to exit PIP. Next the PCFILE is run from RAM. Note that the submit file is not finished but suspended until you quit PCFILE. When you have finished using your applications program PCFILE, PIP is invoked again and copies all the altered data files back to the A: disk. These data files are then erased from RAM using the 'C' option of ERASE which asks for confirmation before erasure.

You can also put messages on the screen in the middle of a SUBMIT operation using a feature of PIP that copies a text file to the screen.

```
PIP
<CON:A:MESSAGE.TXT
DIR B:
```

MESSAGE.TXT warns the user to put a disk in drive B: and press return. Note the absence of the lone < which forces the user to press return to end the PIP program and continue with the SUBMIT file's commands.

CP/M - Keyfig

This is one of the unique features that comes with your C-128 machine with CP/M, easy to play around with and very useful. There on your systems disk is a couple of files called KEYFIG.COM and KEYFIG.HLP which are included to redefine your keyboard. Within CP/M+.SYS file are definitions of every key on

the keyboard. Every key (with three exceptions), is redefinable. KEYFIG does just that.

Run KEYFIG. You are presented with a menu of 14 help topics. You are well advised to read all the help files first.

After choosing 'done help' you are asked whether you want the default key definitions or the ones in the CP/M+.SYS file. Unless you have already altered them they will both be the same. Choose 'edit a key' from the next menu and then every time you press a key on the keyboard you will be presented with the four current definitions for that key. These are normal, shifted, Commodore shifted and control. Initially the Commodore shifted values are the same as the ordinary shifted values but they don't have to be. Using the upper cursor keys, go down the selection to to the one you want to change and press <RETURN>. You can then do one of six things; assign a single character, assign a string, assign a special function, assign a hex value, assign a colour or leave the key with its current definition.

You can for example define the keyboard for the 'Dvorak' typewriter keyboard. Assigning hex values and colours are self-explanatory. The help file gives you more information. Use PIP to print it out. If you choose to assign a string, you are given a list of 32 different strings to assign. Most say F2 or F8, no problem because you can also edit these strings. These assigns are macros. Say you have a Word Processor that requires a few keystrokes to go to the end of a file. Type in the commands to a certain key, this is then stored on the boot disk and loaded in on booting the system. Just press that key when in the WP and you jump to the end of the file. No need to keep remembering the command. Usually this is assigned to function keys but many of the Control values are empty so use those as well.

There are 16 'Special Functions', seven of which are pre-defined but you can reassign a key. Control-Enter (numeric keypad) exits CP/M by also booting C128 mode. Control-/ gives you a backslash (not on the 128 keyboard), Control-: and Control-; give you curly braces.

After this editing process, choose the 'quit and save' option. You can save them onto the SYSTEMS disk so that they boot up each time; use them for this session only as the current definition; or lastly forget and trash them. You are still given a chance to re-enter the program before the final exit. KEYFIG gives you a whole host of oportunities to customise your system. Try it for yourself. There is more to CP/M than the intimidating A> prompt. I hope this enables you to get more from your system than you thought possible.

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AMIGA WATCH

by Mike Todd

Last time, I mentioned Timesaver, a cunning little device which sits between the Amiga 1000 and its keyboard and provides a host of useful features.

These features include a huge number of programmable keyboard macros, invoked by pressing any two previously programmed keys, and the ability to set the date automatically on reset. Timesaver interrupts the normal startup sequence (by breaking into it with the equivalent of CTRL-D) and then issue the DATE command, having set the parameters from its own internal clock.

I had some problems with the version of Timesaver that I had, but now I have a fully working version and I can certainly recommend it as a versatile method of having a real time clock on the A1000.

NEC P2000 printer

Some time ago, I decided to upgrade from my EPSON FX80 printer, and bought the NEC P2200 24-pin dot matrix printer.

This is a powerful little printer, with superb print quality. For draft modes, it is fast; at letter quality, it is superb. It has a basic Gothic font (which can print 10, 12, 15, 17 or 20 characters per inch), as well as a high speed 12 cpi version (168 characters per second). There is also a letter quality Courier font, which can print in the same range of sizes.

As well as a proportionally spaced font, there is an ITC (International Typeface Corporation) font called Souvenir, Super-Focus (sans serif) and OCR-B (optical character recognition). Additional fonts come on plug-in cartridges.

The printer is EPSON-Q compatible, and so will work well with the EPSON-Q 1.3 printer driver. Paper feed is either push- or pull-tractor or single sheet (a feeder is available). One very neat feature is the ability to automatically 'park' the tractor feed paper out the way, and then to lift a flap at the front of the printer and insert a single sheet of paper which will feed automatically into the print position. Very useful if you normally use tractor fed paper, but need to print a single sheet of headed notepaper.

The graphics resolution is anything from 60 dpi to 360 dpi horizontally AND vertically! That beats some laser printers at only 300 dpi. The character set varies according to font, but is basically the IBM set on all except OCR-B.

This is an impressive little printer which, although a trifle noisy (but then so are most 24-pin printers), is excellent value. Its retail price is £395, but is readily available as low as £275 (and lower).

1.3 Printer Drivers

The new printer drivers are now slowly emerging onto the market place. Commodore themselves haven't released the full 1.3 package as yet, but the drivers have found themselves included with DeLuxe Photolab, a paint program addition to the Electronic Arts range. This comes with a set of 1.3 drivers, principally for the EPSON-X and -Q range of printers, and compatibles.

A major disappointments with the 'old' drivers was the scaling that took place to maitain the correct size of the printed image. This was fine for many 'paintings', but severely limited the paint packages when it came to drawing diagrams, charts or images containing horizontal or vertical lines. The results were generally unpredictable, with chunks of lines missing.

With 1.3, you have the option of having integer scaling. This means that every screen dot is replaced by an exact multiple of printer dots. Provided that the horizontal and vertical printer resolutions are the same, then a perfect one-to-one copy of the screen image is produced.

For instance, take the EPSON-Q driver, which has a 360x180 resolution (HxV) option and a screen image of 640x512 (HxV). For each horizontal screen pixel, the driver can print 1, 2, 3 or more printer dots depending on the width of image requested (as part of the new Preferences Graphics 2 option). The 640 screen dots could be printed as 640, 1280, 1920, or 2560 dots. At 360 dots per inch, this makes the final image width 1.78, 3.56, 5.33 or 7.11 inches.

Unfortunately, the vertical resolution is only 180 dots per inch, therefore for every one vertical dot, the printer must print two horizontal dots to maintain the geometry of the image. This limits the practical image width to 1280 or 2560 dots horizontally (2 dots and 4 dots per screen pixel - 3.56 or 7.11 inches).

If you chose a width of 1.78 or 5.33 inches, the driver will preserve the horizontal resolution, but will use an incorrect vertical resolution (since it can't print half dots!) and the images will come out squashed.

All this appears quite complex, but it does allow a wide range of image sizes (since with many paint packages images can be larger than the screen) - with a 360x360 dots per inch (like the NEC P2200) the flexibility in size is even greater, provided that an appropriate printer driver has been written.

I have done several diagrams recently using Photolab with the 1.3 EPSON-Q driver, and have been able to generate exact A4 pages by using a screen size of 720x1050, setting Preferences to Integer scaling, with Absolute image size, and setting the width to 8 inches. This produces four dots per screen pixel horizontally, and two per pixel vertically and, with 'smoothing' (or 'anti-aliasing') turned ON, the results are superb.

***

SUPER* CORNER

by Peter Hauke

Once again, time has gone on holiday, leaving me with an unwritten column. No doubt, time will soon return, refreshed and ready for action again. There seems to be some interest in a Super Lib disk for all formats, but unfortunately the emphasis is on some. With time the way it is, I am afraid that the disks are taking longer to produce than I at first hoped.

Let's move on. Some prices from Precision Software for you. Superbase Personal 2, which consists of Superbase Personal plus the Text Editor, is released at £99.95. Superbase Personal now sells at £59.95. Superbase Professional sells at £249.95. A new version of Superbase Professional which will offer similar facilities as the PC product should be announced shortly. This version will include automatic transaction handling and communications. In addition to this, Precision have an upgrade path which allows existing users to move up through to Superbase Professional easily. Superbase Personal (the first version) has now been dedongled!

Precision offer 90 days free software support with Superbase Professional. After this, extra support can be purchased. (Superbase Professional: £75 for 30 hours in a year, Superbase Personal: £50 for 20 hours in a year. At only £2.50 an hour, that seems very reasonable to me.)

Super Fixit 1571 ROM

It appears that many members have installed the new ROMs into a 1571 and have been disappointed to find that they are still having problems. I have spoken to Precision who inform me that there could well be problems with the Superbase files, even after installing the ROM. Firstly, you should ensure that the ROMs come from HRS who are the official Commodore chip suppliers. Secondly, you should be aware that a disk which was created with a 1571 drive with the old ROMs may still have problems. The solution is to export all the data from your database. Format a new disk. Copy the export file across to the new disk and import the data again. If your database is too large to export then backup the disk with DOS shell two or three times and delete large chunks of the database and reconstruct your file piecemeal.

Supertree

I have received even more enquiries about Ezitree and Genealogy. Will no one step forward to write a regular column on this subject?

TEXAS TALES

by Betty Clay

Viruses (virii?) continue to be a most absorbing topic. My own interest in virus checkers was aroused when my Amiga began to lock up, crash, and exhibit other strange behavior at all sorts of inconvenient moments. When I asked for advice, most often I was told that it was probably caused by a virus in the machine. The symptoms did not fit those of any virus I had read about, but I set up several of the virus checkers in my startup script just in case. Actually, I had never seen one of the critters first-hand until recently.

Non-Standard Boot Block, Case 1

I decided to install the TCELL virus checker on my machine, and some of the results are extremely interesting. Example: df1: was empty, and my WordPerfect disk was in drive 0. TCELL informed me that there was a non-standard boot block in df1:! How an empty drive can acquire a non-standard boot block escapes me. These are not smart drives. Nevertheless, I accepted TCELL's offer to show me the block, and it replayed a portion of a letter written the day before. There was a copy of that letter on the WordPerfect disk, but it was not in the boot block, and had not been called into memory. Even more interesting - my machine was turned off all night. Either my Amiga has strange and undocumented powers, or the program was terribly mistaken about the boot blocks.

Using Viewboot to examine the boot blocks of disks that had been in my machine, I could find nothing resembling the block presented by TCELL.

VIRUSX updated again

VIRUSX is now up to version 1.6, and is still my favourite virus checker. Steve Tibbett, who created and maintains this program, works in a computer store. People are constantly bringing in strange disks for him to look at, and each time he discovers a new virus he updates his program.

The disappearing software

Another mystery is the disappearance of software from one of my disks. The programs were all public domain, and the disk was one I was preparing for my club. While attaching icons to the textfiles and programs, I began to notice that some of the directories on the disk were no longer showing up. When I asked for the directory from CLI, the programs still didn't show up. The LIST command didn't find them, either. Remembering the name of a missing subdirectory, I asked for a directory of its files. Up came the list. A command to run the program in that directory behaved normally. Only formatting a disk and doing a copy brought my files to view again, however. DISKCOPY produced a disk with missing files; COPY moved them over as normal files.

Lack of time has prevented me studying this disk in depth. But what have I found? A way of hiding files, even when they have icons? The protection bits for these files were not set. No attempt had been made to hide them.

The Fireworks Icon

The third mystery concerns a disk sent to me by a friend. This one had developed the most upsetting habit of crashing the machine each time the Disk icon was selected. These were not quiet little crashes. There were fireworks on screen and the computer cried pitifully as it went down. The screen went black, and the power light went off. Frequently, though, a simple reboot restored everything, including anything stored in VDK:

Although partially solved, it is far from clear how it could have arisen in the first place. Somehow, while saving a file, the file attached itself to the end of the disk icon. The disk.info that should have been one block long had grown to about 40K. The size alone could not have crashed the machine, but tacking an executable program on the end of the .info file certainly could. Here again, there is considerable study to be done before all becomes clear. If you have any light to shed on these mysteries, I would greatly appreciate your help.

News Report No. 1

Shall we ever see 1.3? Recently, a friend told me that Commodore had indicated to the developers on BIX [Byte Information eXchange - Ed.] that the final version was finished, and the disks and documentation were being printed up. This week (August 24), he tells me that he just received some Omega 9 files, and that all distribution has been moved back once again.

News Report No. 2

It has recently been our pleasure to have the company of Tim Arnot. Precision Software have opened their US customer support office just outside the Dallas-Fort Worth airport, and Tim has been here to set up the technical support.

I leave it to Tim to tell you about the strange foods and beverages we thrust upon him, and about how casually we handle our lives. It is unlikely that I could do justice to the story anyway. I will tell you, though, that we cannot

understand his reluctance to try iced tea, and to have biscuits and gravy for breakfast. He managed the chicken fried steak and the fajitas just fine.

During his stay, we have kept him very busy evenings and weekends speaking at our clubs and participating on our communications networks. The manager of the new office has kept him very busy during the days. You can believe him when he says he didn't have time to see much of Texas - and there is a great deal to see. It's just that it is all so far apart! Texas is longer and wider than all of England, and the things we'd most like Tim to see are scattered all over the state. We may have to leave off some mountains, canyons, the Big Thicket (a swamp none but trained guides can manoeuver), NASA, the beaches, and more. Perhaps Tim must make more than one visit!

News Report No. 3

Since writing my last article, an opportunity arose for me to become one of the sysops on the CompuServe Information Service. My job there is to participate fully in the Amiga Forums, and in particular to take care of things in the AmigaArts part of that forum. AmigaArts covers everything that is not technical in nature. Hardware and programming items belong to AmigaTech; everything else to AmigaArts. There is also an AmigaVendor section but this is maintained by the businesses that are offering technical support there.

CompuServe is probably the largest of the information services in the U.S. The Amiga Forum alone has more than ten thousand subscribers, and all of those have signed on within the past ninety days. Most of the members live in the U.S. or Canada, but people call in from all around the world. We have a regular correspondent from Australia; several from England; at least one from Buenos Aires, Argentina; and a number from various European countries.

Each day, the message section of AmigaForum receives two or three hundred new messages to be read and answered. New freely distributable software is uploaded, and this must be checked to make sure it is truly public domain or shareware, that it works, and is properly compressed for downloading. There are evening conferences open to all members. One of the sysops must be available in each half of the forum most evenings to conduct these conferences. Most weeks, there is also a formal, moderated conference with some well-known person or someone who represents a product or company. On August 31, the formal conference is to feature Tim Arnot of Precision Software.

The sheer size of CompuServe is difficult to comprehend. I have a 200+ page book that contains brief descriptions of all the services available. It would be impossible for me to take advantage of them all! This service is available 24

hours a day, and the rates are the same at any hour. There are less expensive services in the U.S., but nothing else even approaches the number of subscribers or offers more. With all of these customers, it is almost unheard-of to call CompuServe and get a busy signal. They serve 300, 1200, and 2400 baud users; their own Quick B protocol is at least twice as fast as XModem, and it uses the windowing technique. Files are transferred in 1K blocks; the second block is sent ahead while the host waits for the acknowledgement that the first was OK. Should there be a need to re-send, the software can cope and still get everything in the correct order. The speed is quite impressive.

An impressive addition has just come to CompuServe's Amiga users. We now have an automated package with the undignified name Whap!, which stores your name, ID number, password, telephone numbers, modem information, etc. It also stores a list of the message sections you want to read in each forum. It permits you to read the catalog of software from the libraries, and mark the ones you want to download. This is also stored. After setting up all of this information, when you tell it to sign on, it automatically signs you onto the system, collects your Email, then goes to each forum you have selected and collects all of the new messages in the areas you marked; then it downloads any software you have marked. After taking care of all the chores, it signs you off. I've learned that I can take care of almost all downloads in 10-15 minutes.

After signing off, Whap! highlights areas with messages to be read, and presents a viewer to read them with. This is also an editor, so you can answer each message as you read (but OFFline). It permits you to originate messages or Email, too. Another option allows you to mark software to be uploaded. The next time you sign on, all of these messages upload, and mail will be automatically sent in the same session that downloads your new information. It is a remarkably capable and impressive program. Very little knowledge of telecommunication is needed in order to use it successfully, and it is attracting many new users who simply did not want to learn to navigate the system by hand. I've sent over a demo version of Whap!. Should you happen to be a CompuServe user, you might inquire about it. It can save you money (but please give Peter [Miles] time to get it ready for you. I only sent it yesterday!) Along with Whap!, I sent the latest Access! terminal, Access1.4. This one offers PAL support. Should you use Access1.4 and have comments, bug reports, etc., the author would like very much to know. He does not have a PAL machine, but wants his program to give you support. Either send reports to CIS or get them to me and I will send them to Keith. His name, address, and CompuServe ID number are all in the documentation, which is called Access.Me.

CHAIRMANS CHATTER

by John Bickerstaff

PC SHOW and 11th COMMODORE SHOW

When you read this article the 1988 PC SHOW will have been and gone and the Commodore 1988 Christmas Show will not be far away. We are taking part in both exhibitions and I hope visitors will gain from your visit and call at one or other of our stands. The reasons for our participatition in exhibitions are several. They include the opportunity to meet your committee face to face and to personally discuss your ideas and interests; the opportunity to raise that particular problem with the experts at one of the seminars; and to benefit from the many bargains available at the shows - not forgetting your chance to participate in our regular raffle. Hope to see you there.

Participation

ICPUG is your Group. It exists for you and is run by you - particularly by those who take an active part in the many supporting functions needed to ensure that the Group operates efficiently and satisfactorily. The thanks of the managing committee go particularly to you. However, the Group can only exist if enough Commodore owners become members. Therefore every member helps others in joining and sharing his or her enthusiasm.

Some members own one machine only while others have several. Many of the latter have become computer families where the younger members use C16s, Plus4s or C64s and the parents use C128s and Amigas (of course other families distribute their machines the other way around). It would be interesting to learn how the use of machines developed and the purpose to which they are put. The Editor welcomes any articles about Commodore machines so why not set up a family project and send off the result to Bill Bremner!

Our advertisers

We have a limited number of advertisements in the newsletter. Those included are submitted by companies who are dedicated to Commodore machines and include on their staff one or more members of ICPUG. Therefore it is most likely that by making an intended purchase from one of these companies you will receive useful guidance and good service. So please support our advertisers, they have already supported the Group by advertising.

External non-Commodore drives

5.25 inch drives are coming. One famous UK supplier is believed to be producing this drive size with alternative track (80/40) read/write facilities for use with PC-type machines as well as Amigas. If you have one of these new drives why not share your experiences in the members letters area.

The Post Man

It is sad to see that our post has been delayed due to strike action. The July/August newsletter should have reached you all before the first strike occured. It is certain that your requests for disks from copiers will be delayed so please be patient. Whilst on the subject of post please ensure that all packets are provided with sufficient return postage. When sending enquiries or orders to us you must enclose an addressed and sufficiently stamped envelope. Thank you.

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EXHIBITIONS

by Janet Bickerstaff

Commodore Christmas Show

The Commodore Christmas Show is to be held at the Novotel, Hammersmith, London, from Friday 18th November to Sunday 20th November, with set-up on Thursday, 17th November. Stand volunteers please note!

Take advantage of the special discount to ICPUG members, and order your tickets by using the Advance Ticket Order Form enclosed with the Newsletter.

At the time of going to press we do not know our stand number, but we look forward to seeing members old and new at the Show. There will be the usual members' free raffle, with extra prizes this time donated by Commodore. Get your ticket at the stand.

ICPUG are planning a series of presentations at the Show at the request of Database Exhibitions. These will be held in the Salon Bourg. In addition to the popular Question and Answer Seminars there will be demonstrations of music, using the Midi system, and art on the Amiga, plus many more.

HOW YOU CAN HELP ICPUG

ICPUG is your group. ICPUG is run by the members for the members. Often we are asked, "How can I help ICPUG?". You can help ICPUG by simply volunteering your time and energy. Or you can help ICPUG by volunteering your skills and experience. Or you can help ICPUG by volunteering your knowledge and expertise.

The largest body of helpers is without doubt the librarians. They unselfishly devote much time and energy relentlessly copying disks for other members. The reasons why most librarians take on the work is simply that they have been so happy with the help they have received from ICPUG that they want to put something back into the club. How do you become a librarian? Simply by writing to the relevant Head Librarian and offering your help. Of course, you will need to have access to the correct equipment. And it does not matter how long you decide to be a librarian. Every disk copied is one less copied by another librarian who may already have too much on his plate.

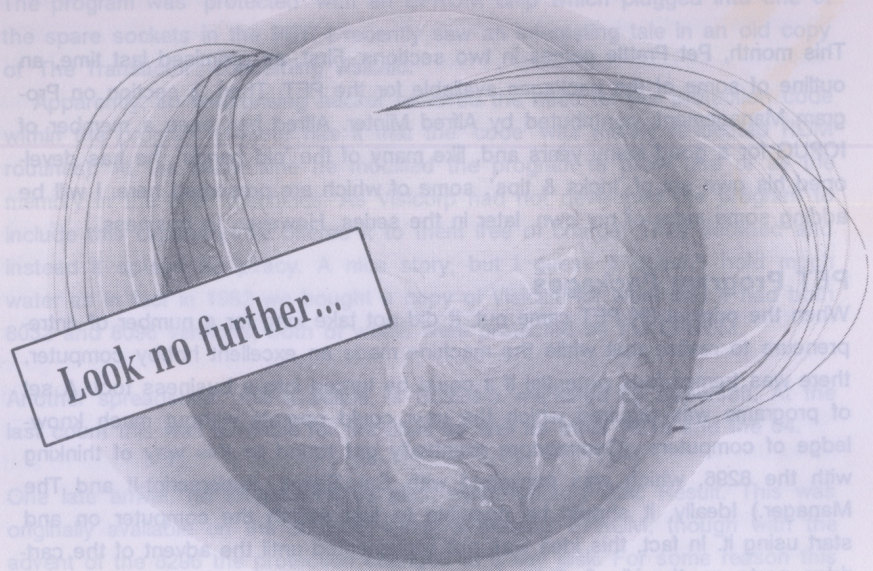
The writers and editorial team also have a difficult job. Producing the newsletter is a full time job and the editorial team are always looking for new members to help spread the load. Many writers spend a great deal of time writing, researching and editing their articles before sending them to the editors in order to reduce the amount of work the editors have to do. The editors, meanwhile, have to read all the articles, check them for spelling, check them for grammar and also check them for technical errors. The editors are looking for two members to join the editorial team.

There are three editors. Of the Co-Editors, Iain Graves is responsible for transferring articles and letters from Amiga format to 4040 format; Peter Hauke for small adverts, letters section, and display adverts. He also helps with final production of the newsletter. Bill Bremner, the Editor, is responsible for selecting articles and overseeing the entire production of the newsletter.

With the introduction of the Amiga as a major element in Commodore computing, the editorial team are looking for an editor with sufficient Amiga knowledge to do justice to the Amiga articles submitted. Additionally the editorial team are also looking for a libraries editor to coordinate the libraries. If you are interested in helping with the newsletter, then contact one of the editors.

There are many other ways you can help ICPUG still. You can write for the newsletter, you can help on the show stands, you can offer technical help, you can run a regional group. Currently ICPUG is also looking for somebody to look after the exhibition equipment. Contact the chairman if you can offer ICPUG a location for storage.

LOOKING FOR SOMETHING OUT OF THIS WORLD?



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Car parking facilities available at the Novotel.

DATABASE EXHIBITIONS

PET PRATTLE - 4

by Joe Griffin

This month, Pet Prattle comes in two sections. First, as promised last time, an outline of some of the packages available for the PET. Then, a section on Program Management, contributed by Alfred Minter. Alfred has been a member of ICPUG for a good many years and, like many of the 'old hands', he has developed his own set of 'tricks & tips', some of which are presented here. I will be adding some more of my own, later in the series. However, to business...

PET Program Packages

When the original 8K PET came out, it did not take long for a number of entrepreneurs to realise that while the machine made an excellent hobby computer, there was tremendous potential if it could be turned into a business tool. A set of programs was required which the user could operate without much knowledge of computers. (Commodore eventually got round to this way of thinking with the 8296, which was packaged with Calc-Result, Superscript-II and The Manager.) Ideally, it should be possible to just switch the computer on and start using it. In fact, this idea was not implemented until the advent of the cartridge ports on the Vic & C-64. However, it was at least possible to have a program which loaded from tape when the user held down the <SHIFT> key and pressed <RUN/STOP>. Once the program was up and running, all dialogue could be in English (or French, German, etc.), rather than 'computerese' and no in-depth of programming knowledge was required.

With the arrival of the disk drive and printer the scope for packages widened. Previously, it had been desirable to hold the entire program in memory at one time, because of the speed of tape. With the disk drive, loading speed was substantially increased and it became possible to use program overlays. By this means a very large program could be used without sacrificing data storage. As programs became available, the uptake by business users grew and the market expanded, providing room for even more applications. However as the decline set in, and Commodore were displaced in the business market, so the number of packages dwindled. Now there are few available new, though many expensive programs can be picked up quite cheap secondhand.

Spreadsheets

The one type of package which probably did most to place Commodore and Apple machines into businesses was the electronic spreadsheet - specifically

VISICALC. As Brian Grainger has started a series on spreadsheets, I shall not describe them here, but refer the reader to Page 266 of Volume 10 Issue 3.

Visicalc was originally made available for both 40 and 80 column machines. The program was 'protected' with an EPROM chip which plugged into one of the spare sockets in the PET. I recently saw an interesting tale in an old copy of 'The Transactor', concerning Visicalc.

Apparently, an enterprising hacker removed the need for the protection code within the program (rumour has it that the 'code' was merely re-located ROM routines). At the same time he modified the program to allow use of all the memory in the 8096 machines. As Visicorp had not developed the program to include this capability, he offered it to them free of charge! They declined and instead it spread by piracy. A nice story, but I guess it doesn't hold much water as in fact in 1982 we bought a copy of Visicalc for work and it had both 8032 and 8096 versions, both of which were protected by the EPROM.

Another spreadsheet, still available, is Busicalc, marketed by Supersoft. At the last count this was available for the 8096 as well as other PETs and the 64.

One late arrival, no longer with us alas, was Handic's Calc Result. This was originally available on the 8032/96, using a security EPROM, though with the advent of the 8296 the protection changed to a key disk. For some reason this system only works on an 8250 drive. It fails to load on our 8050s at work but is perfectly happy with my own 8096/8250 setup. Calc-Result is far more 'User Friendly' than Visicalc and contains a number of rudimentary Help Screens which are called from disk as required. Extensive use is made of program overlays. Calc-result was also available for both the 64 and the 700 series.

There has been very little Public Domain software in this area for the PET. I have seen only two programs, both rather limited in scope.

Wordprocessors

By contrast there have been many text editors and wordprocessors developed within the public area. PET library disk B2 contains a number of fledgling programs with a varying features. Indeed, around the time I joined ICPUG, I wrote my own text processing system, comprising separate text editor and output programs, eventually made redundant by the purchase of a commercial package.

In the early days there were two 'heavyweight' contenders and a number of 'lightweights'. The latter included Papermate (or Simply Write) - a nice package, not as slick as some later offerings but quite fast, and written in BASIC, so it could be tailored to individual needs. My manual includes a list of subroutines

and variables used by the program, with a brief description of their function.

The two heavyweights were WordPro and Wordcraft. Both evolved through a series of versions, adding features to keep pace with the machines. Both were very expensive. It always seems to be the case that a product marketed to 'business users' can carry a far higher price tag that the same product sold to hobbyists. In 1982 both WordPro and Wordcraft sold for about £400.

At that time Simon Tranmer produced his own wordprocessor which was Beta-tested by friends at ICPUG-SE. I believe it was Kevin Viney who coined the name 'Superscript'. The SE group began to sell the program for the unheard of price of £35. The heavyweights at WordPro took a bit of an exception to this as Superscript was superficially a similar program to theirs (Simon had added compatability to allow users of WordPro to upgrade easily) but sold for a fraction of the price. Legal action was threatened against a number of ICPUG-SE members and at the end of the day Precision Software took over distribution of Superscript, their legal counsel Alistair Kelman became a good friend of ICPUG, and WordPro retired hurt. Subsequently, Commodore adopted Superscript as the official wordprocessor for the 700 range and commissioned a version for the C-64. The latter version was marketed as 'EASYSCRIPT', and became a world leader. The original Superscript came on a protected disk (WordPro used an EPROM, Wordcraft a dongle) which contained versions for 3032, 4032, Fat-40 and 8032 all, with similar commands and features.

Superscript-II was a later version for the 8096 and 700, followed by SS-3 for the C-64 and C-128. Script Plus for the Plus-4 was from the same stable.

Databases

The third major business use of micros is for data storage and retrieval. Here too there have been a number of runners over the years. One of the first commercial packages was Compsoft's DMS (Database Management System, I guess). The story goes that Nick Horgan wrote a database system, in BASIC, on a DEC computer as part of his final year project at university. When the PET became available, he typed the program in from the DEC listings. I am told that the program included statements not allowed in PET BASIC. However, it worked pretty well, and being in BASIC, the user could tweak it to his own needs. Mick Ryan, one of our former Chairmen, was a great fan of DMS. Around 1985, Compsoft released a compiled version called DMS Diamond. This was faster and more robust but could no longer be modified.

As I recall, the major competitor to DMS was Commodore's own The Manager, written in Canada, specific to the 8000 machines. The program suite contained around 20 separate programs, many in BASIC. It was possible to interface with the data, which was stored in relative files, using one's own routines. For a long time I used The Manager for a project control system at work, using the routines of The Manager for data management and my own programs for retrieval and reporting. The biggest criticism I have of The Manager is the poor retrieval facilities. It is only possible to search for a field beginning with a particular string. Hence system design was constrained by the need to ensure that fields were set up to allow access for searches.

By comparison, the last arrival in this field was a joy to use for retrieval. I do, of course, refer to Superbase, again from the Precision stable (this one was only available on 8096 and 700). As with Superscript, it was written in machine code and supplied on a protected disk, so there was no way it could be modified by the user. However, Simon, together with Tom Cranstoun, had given Superbase most of the facilities one could want in a database. I upgraded my project control system to Superbase and using the built-in programming language I was able to do the entire job within the data base, without external programs. In particular the search functions are delightful; in contrast to The Manager's 'find a record with a field beginning with...', Superbase allows you to find a record containing a text string (anywhere in a number of consecutive fields) or where a field does not contain a particular string and various combinations using 'and', 'or' and 'not'.

My own personal 'bitch' about Superbase concerns the programming language. I am essentially a lazy programmer, so I use keyword abbreviations (eg: ll for 'list', gO for 'goto', etc.). Now everyone knows that nE in BASIC is 'next', so when I was developing a very large program and wanted to clear several lines of the screen, I used a for...next loop, except I abbreviated 'next' to 'nE'. That's when I found out that in Superbase 'nE' is 'new' - I hadn't saved the program I had been working on for 2 hours! After switching the computer off and going for a long walk, I investigated the order of keywords and found one called 'OLD' - it's not implemented!

Current availability of Packages

Precision still sell all versions of Superscript, even the original one. ICPUG discounts are available on their products.

Supersoft, to the best of my knowledge, still supply Papermate and Busicalc. Otherwise, I would suggest a small ad in this journal or one of the 'comics'.

Next time I will be delving into the subject of toolkits, a matter touched-on in the following submission by Alfred Minter.

***

PROGRAM MANAGEMENT

Contributed by A.L. Minter

Managing programs is a serious business, and lots of people have developed lots of ideas over the years. Some of these are encapsulated in PET Library disks; others are scattered through the ICPUG Newsletter, and still more are on members' own disks. This contribution discusses a few worth-while ideas.

Saving programs

Anyone who has saved a program under the wrong name, getting two copies of one program and none of another will appreciate this routine. Decide on a line number (I use 30000) and include in every program the following two lines:

```
30000 OPEN 1,8,15:PRINT#1,"S0:progname":CLOSE1
30001 SAVE "0:progname,8":END
```

'progname' is the current program. To save it, simply enter: RUN 30000, and the program is saved under its right name. You can use GOTO 30000 if you do not want to lose variables from the last RUN. That way, all you have to remember is 30000 (or whatever your chosen line number may be). You do not use "@" to save, because if the disk does not have enough room left for the saved copy of the program ('@' does not over-write) the save will fail.

Merging programs

This has to be done by a fiddle, because there is no MERGE command in PET BASIC. First, you save the program as an ASCII file. Key in:

```
OPEN 1,8,5,"0:prognameX,S,W" <RETURN>
CMD 1:LIST <RETURN>
```

The program is now sent to the disk just as it would go the the printer or screen. Modify the name somewhat (by X) to distinguish from the normal save. When all has finished, enter:

```
PRINT#1:CLOSE1 <RETURN>
```

To merge, you need the following short program:


```
63000 rem program to add another program to the one already in
  memory. The program to be added must have been saved as
  ascii by listing.
63001 rem do this by open1,8,5,"0:name,s,w":cmd1:list. Remember
  to print#1:close1 at end of listing
63002 rem leave on screen and load main program. add minimerge
  in usual way. Merge programs by RUN 63992
63003 :
63992 input filename ;n$:n$=0:+n$:open1,8,2,n$+",s,r":poke0,0
63993 print"<clr><down><down>";
63994 poke174,1:ifpeek(0) thenclose1:goto63998
63995 get#1,a$:poke0,st:printa$;:ifa$<>chr$(13)goto63994
63996 printgoto63993:poke158,5:fori=0to5:poke623+i,13:next
63997 print"<down><down><down><down>"goto63993:print
  "<home>";:end
63998 print"<clr><down><down>":fori=0to7:print63992+i:next:
  poke158,10
63999 fori=0to9:poke623+i,13:next:print"list":print"<home>":end
```

<clr> = clear screen <home> = home <down> = cursor down

The program is loaded first and displayed on the screen. Next, load the host program, and insert the merge program by visiting each line from 63992 onwards with the cursor and pressing <RETURN>. Then you RUN 63992 and give the name of the incoming program, already saved in ASCII. The incoming program is then merged into the program in memory and the merge lines are deleted. PET Library disk U2 contains other merge routines.

Chaining Programs

If you want to load and run a program while already running another, then the command LOAD "progname" as a program line does this. But only so long as the incoming program is no larger than the calling program. Variable values are transferred in this case. This means all programs in a suite must be the same size as the largest one. If you do not want this, and do not want to transfer variables, then you make the first line of each program like this:

```
1 CLR:POKE42,XXX:POKE43,YYY
```

The values XXX and YYY are obtained by having the program in memory, complete with the line as above. Then enter:

```
PRINT PEEK(42),PEEK(43) <RETURN>
```

and put the results into line 1. Save it. When run from another program, which is smaller, program space is correctly adjusted for the new program by line 1.

Automatic Loading

Sometimes it is useful to have a front-end program load a machine-code program and then call the main program. This can be done by the following:

```
10 print"<clr>please wait while the program":print"is loaded"
20 print"<down>load"chr$(34)"0:progname"chr$(34)",8"
30 print:print"<down><down><down><down>new"
40 print"<down><down>load"chr$(34)"0:mainprog"chr$(34)",8"
50 print"<down><down><down><down>run"
60 fori=623to627:pokei,13:next:poke158,5
70 print"<home>":end
```

The screen is set up with the commands you would key in by hand; the cursor is <homed> and the PET is fooled into thinking it is all happening through the keyboard by poking the keyboard buffer with carriage returns. You can extend this idea by having the front end program read the directory, accept data input (eg a filename) and preserve the name by poking it into the top of memory, having first lowered the top of BASIC by:

```
10 poke53,peek(53)-1:rem lower top of basic
```

This partitions off 256 bytes at the top of memory. You can preserve things there without them being trampled over by BASIC.

DATA statements

On PET library disk U2 there is a program called Data Get which peeks the contents of a chosen area of memory and translates it into DATA statements, ready for inclusion in a program. When you run that program, you can re-create the area of memory (eg a piece of machine code) without having to load it. This is an example of a program which generates a another program.

Arrays

Once dimensioned, you cannot usually get rid of an array. However, by organising your arrays so that the ones you want to keep are DIM'd first, and then the one you want to re-dimension, you can do just this, by the following code

included at the appropriate place in your program. At the start of the program:

```
10 P1=0:P2=0
20 DIM A$(15) rem you want to keep this array
21 P2=PEEK(46)+PEEK(47)*256:P1=PEEK(44)+PEEK(45)*256
22 rem P1 and P2 are start and finish of the array A$()
30 DIM B$(20) rem you want to be able to change this array later
 .
 .
100 Z=PEEK(44)+PEEK(45)*256:Z=Z+P2-P1:P1=INT(Z/256)
101 POKE 47,P1:POKE46,Z-P1*256
102 rem the array B$() has now gone, and you can safely DIM it
  again to the size you want without a re-dimensioned array error
```

Cursor location on the screen

To position the cursor in a specific place on the screen you could have two string constants, made up of <home> + 80 <right> and 24 <down> symbols. Use these by LEFT$ for the number of moves you want. There is a better way:

```
100 rem locate cursor to line L, column C
101 POKE 216,L:POKE 198,C:SYS XXXXX
102 RETURN

    Where XXXXX = 57949 for BASIC2
                  57471 for BASIC4 40-col
                  57447 for BASIC4 80-col
```

Immediately you return from this GOSUB you must either print or input something at the chosen location.

Screen Input

You can open a file to the screen to write to it by OPEN 1,3. It then works the same as if going to a printer. The user is given a choice by a routine like this:

```
100 INPUT "Screen or Printer ";Z$
101 IF Z$<>"S" AND Z$<>"P" GOTO 100
102 H=4.IF Z$="S" THEN H=3
103 OPEN 1,H
    rem routine to print, using PRINT#1 follows here
```

```
200 CLOSE 1
```

You can do the same with GWBASIC/BASICA; don't use LPRINT, but open a file to Z$ for output as 1. Make Z$ equal to SCRN: or LPT1: as appropriate. Less well known is that, having opened a file to the screen, you can use it for input as well. This allows you to design a data input screen withouth the INPUT fall-out problem, and you can control exactly which field you want to use for the data input.

```
10 poke216,sc(i,1):poke198,sc(i,2):sys57471:open9,3:input#9,zz$
11 close9:zz$=left$(zz$,sc(i,3))
```

sc(i,1) is the line number on the screen for the ith field; sc(i,2) is the column, and sc(i,3) is the length of the field to be input. OPEN 9,3 opens an input channel at this location. Into ZZ$ goes everything on the screen line from the start position to the screen's edge. The unwanted bits are then cut off.

Un-NEW

There are several programs which will recover from a mistaken NEW command. Here is a routineto be kept on a piece of paper and keyed in direct. Clear the screen first, and then type:

```
POKE 1026,4:SYS XXXXX

where XXXXX = 50242 for BASIC2
              46262 for BASIC4
```

Toolkits

Toolkits come on a chip for BASIC4, and on tape/disk for BASIC2. However, be warned! If you have a program written with a piece of machine code sitting at the top of its BASIC content (and such code is usually re-locatable, because it will be moved if you edit the BASIC), then use cf ANY toolkit commands will throw away the machine code, and the program will not run. If you have saved it, over-writing the original version, hard luck!

Variable dumps

PET Library disk U2 contains programs which read through a BASIC program on disk and make a list of all the variables it contains.

***

BRIAN'S BLUNDERINGS

by Brian Fowler

Many Amiga owners employ utilities such as "morerows" or "scnsizer" to increase the display size. While useful, not all applications allow you to make use of the greater display area. Superbase Form Editor is one example, and it is annoying to have a display capable of showing 80 columns in the standard font, and finding the "Formed" window will not drag beyond its startup-size.

When I saw "PalCli" by Kevin Stevens, I thought that he had found the solution. However, "PalCli" works by putting the currently active window's origin as high and left as possible. It then checks to see how many rows the display has, and lengthens the window to take advantage of the greater number of scan lines on PAL Amigas. The width of the window is set to 640 pixels (the Amiga default). In other words, it is still impossible to resize some windows to take advantage of the wide display afforded by the use of "scnsizer" or similar.

The following program starts by opening the Intuition and Graphics libraries. If they are opened successfully, the message "Activate Window for Expansion" is displayed. The program waits a few seconds to allow the user to click in the chosen window. If another screen is involved, screens can be shuffled to the front using LeftAmiga-n and LeftAmiga-m. (A standard Amiga key sequence)

When the program has counted to 10000 ten times, the active window is found and the origin moved to the far left, three pixels down from the top of the screen. This way the screen's drag bar is not obscured. The window is set to the maximum width and height, and the program exits.

To produce the program "Size", I first had to use a text editor to write the C code. My preference is Uedit, which can be found - you guessed it - in the ICPUG Amiga library. By convention, source code in C is given a ".c" suffix, so I saved the file to disk as "Size.c". It is straight ASCII, as shown below.

The next stage is to run the compiler over your code. This is invoked (in the case of Lattice C) by: `1> lc size.c`

Eventually, the compiler reaches the end of your code without finding a fatal error, and reports a successful compilation. Does this mean you can now run your pride and joy ? Not likely. The compiler has actually produced a file that contains a mixture of machine code, information to allow other pre-compiled routines to be merged, and relocation information for the Amiga's loader (code in the Amiga can end up being thrown into any available chunks of memory, so it is important that the final code is relocatable).

The next stage is to "link" the output to the supplied C library and start-up module supplied with the compiler, to produce (at last) an executable or runable file. Blink is the linker supplied with Lattice C, and for this project, I invoked it as follows. Rather than type in a string of parameters each time I ran Blink (yes, the linker can find errors, and you then have to correct the source, recompile and link again), I wrote a little batch file -

```
blink from lib:c.o+size.o to Size library lib:lc.lib+lib:amiga.lib
```

and called it "link". So, to invoke the linker, use `1> execute link`

and Blink does its stuff. If the link is successful, Blink tells you so, and indicates the size in bytes of the executable file. Now you can test it by typing "Size" at the prompt, and re-size windows to your heart's content.

```
#include <intuition/intuitionbase.h>
#include <graphics/gfxbase.h>

struct IntuitionBase *IntuitionBase;
struct GfxBase *GfxBase;
struct Window *Cli;

/* Size.c          2nd July 1988    Brian Fowler
 * based on 'PalCli' by Kevin Stevens
 *
 * This program, when run, allows the user to activate a window
 * ( by clicking in that window ) and will then re-size that window
 * to the maximum possible. The top edge of the window starts 2
 * pixels below the top of the screen, so as to allow access to
 * the screen drag bar.
 *
 * Those who use scnsizer or morerows can now allow any
 * application to use the full width and height of the display.
 *
 * Compiles with Lattice 4.01 ( 8100 bytes )
 *
 */
void main();
```



```
void main()
{
void delay_func();

if((IntuitionBase = (struct IntuitionBase*)
OpenLibrary("intuition.library",33)) == NULL)
exit(1);

if((GfxBase = (struct GfxBase*)
OpenLibrary("graphics.library",33)) == NULL)
exit(2);

printf("\n    *** Activate Window for expansion ***\n");

delay_func(10);

Cli=(struct Window*)IntuitionBase->ActiveWindow;

if(Cli->TopEdge!=2|Cli->LeftEdge!=0)
MoveWindow(Cli,(0-Cli->LeftEdge),(2-Cli->TopEdge));

SizeWindow(Cli,((GfxBase->NormalDisplayColumns)-(Cli->Width)),
((GfxBase->NormalDisplayRows-3)-(Cli->Height)));

CloseLibrary(IntuitionBase);
CloseLibrary(GfxBase);
}

VOID delay_func(factor)
int factor;
{
int loop;

for(loop=0;loop<factor*10000;loop++)
;

return;
}
```

THE PPI 1000: EVERYTHING THE AMIGA 1000 NEEDS

by Frank Chambers

My friends would say that I am conservative, not given to doing anything without detailed planning and never ready to accept anything at face value. How, then, did I find myself sending a large amount of money to America to buy a piece of hardware I had never seen nor even read a review of? Any reader who dares to comment that I have ended a sentence with a preposition is referred to the famous remark ascribed to Churchill or, better, to the little boy who, disappointed with his father's choice of bedtime story, said, Daddy, why did you bring that book that I don't want to be read to out of up for?

The hardware is Amiga-shaped and Amiga-coloured, sits on top of the Amiga under the VDU, and is 3.5" high. The entire gubbins connects to the main computer by an unobtrusive thingy that plugs into the expansion port and a similar port in the add-on device. Mine contains a second floppy disk drive, a 20Mb hard disk, and 2Mb of fast RAM. I could have chosen a 40Mb hard disk, or any two of the above, (such as two hard disks) as well as up to 8Mb of RAM. It would all fit in the same box but cost more. In addition, the people at Palomar Peripherals, for such is their name, throw in a real time clock-calendar and auto-configuration. This means that when I boot up the Amiga, it knows about the hard disk, DH0: and it knows the date and time.

The unit has an internal, cool-running switching power supply and its own wee fan. It came with the necessary floppy drive cable, all other connections being made through the unobtrusive thingy aforementioned, which sticks out about an inch from the right-hand side. It has its own pass-through connector as well, so that you can add on some other machine later on, if you can think of anything you will need after this. All I had to supply was a power transformer, 240V to 110V, 100VA capacity, available from Maplin and the like.

Anyone who can use the CLI will find the installation no trouble at all, simply by following directions. Those who want to know what they are doing will have to study some of the command files which are provided on the installation disk. The hard disk interface incorporates Direct Memory Access, which provides the fastest possible data transfer. This subject is treated in the July/August '87 issue of Amiga World. The speed of loading the Workbench (V1.2 required) from hard disk has to be experienced to be believed. Two

clicks on the hard disk icon, and the whole window (20 icons in my case) appears in less than four seconds.

Unfortunately, it is not possible with DOS 1.2 to boot from the hard disk, so I still have to insert my Kickstart and Workbench disks as of yore, but my Startup-Sequence file speedily loads all the c: files to my now-spacious RAM: and hands me over to the hard disk, after which the Workbench disk is put out to pasture.

Copious correspondence with Mr. Max Meredith, the president of PPI, and the very careful @packaging which protected the device when it arrived, not to mention a warranty as to parts and labour for six months and a satisfaction-guaranteed clause which allows return in the first ten days for full refund, no questions asked, were some of the considerations that led me to decide to buy, and I have never regretted it. The cost is high, but you will have to look very far indeed to find anywhere else which can provide the same functions for an equal or better price. I couldn't.

The firm: Palomar Peripherals,
14580 High Pine Street,
Poway, CA,
92064, USA

The phone: (619)748-1202

The prices:		
	unit with clock and 20Mb hard drive	1085
	unit with clock and 40Mb hard drive	1285
	unit with clock, 20Mb hard drive, and, 2Mb fast RAM	1645
	unit with clock, 40Mb hard drive, and, 2Mb fast RAM	1845
	for each additional 2Mb RAM add	600
	for internal floppy drive add	195

I also paid $108.50 for air freight to Ireland plus VAT too numerous to mention. You can get the lowest VAT rate by creative thinking about what to call the device. Mr. Meredith will be glad to oblige. Far be it for me to suggest malfeasance, but I understand that experimental farm machinery may enter VAT-free.

Prices are as of July '88. I say: get 'em while the dollar is low!

KERNAL CALLS-3

by Ian Cassidy

Welcome to the third article in the Kernal Calls series. In this article we are going to look at the routine called CHRIN and how it can be used to accept characters from the keyboard.

CHRIN	Input a byte from the input channel
CALL ADDRESS	$FFCF (65487)
COMMUNICATING REGISTERS	A
REGISTERS AFFECTED	A,X
PREPARATORY ROUTINES	OPEN,CHKIN

From the brief description above you will see that the X register is used by CHRIN. Therefore we must use only the Y register in any indexed addressing. The preparatory routines need to be called when using an input channel other than the keyboard, which is the default input channel. The demonstration program in the first article of this series showed how the CHROUT routine could be used to print out a string of characters. Preparing strings for printing requires the character code of each character to be stored sequentially at a given address. To accomplish this we could use a machine code monitor to store each character, but this would require looking up tables to get all the correct codes for each individual character.

This is where the CHRIN routine is invaluable. The first problem that must be overcome is how to write a single routine that can be used to store text at any address. The method I have employed is a mode of addressing known as Post-Indexed Indirect Addressing. Once you have mastered this mode of addressing it can be used to look up tables anywhere in the computer's memory. What we have to do is define two free zero page addresses as a vector to point to where our table of data is to be stored. This way you only have to change the address stored in the vector to read or write data to and from the table. The vectored address should be stored in the normal Low/High byte format.

```
EXAMPLE : $FB = $00 : $FC = $0D ; Address = $0D00
```

To make things simple we could use a Basic program to determine where the text is to be assembled and calculate the high and low bytes.


```
10 INPUT ENTER START ADDRESS OF TEXT > ;SA
20 AH=INT(SA/256):AL=SA-(AH*256)
30 POKE 251,AL:POKE252,HL:
40 END
```

The TEXT INPUT routine demonstrated here uses the Y register as an index. The delete key can be used to erase text up until the point where a carriage return is entered. When that happens the Y register contains the total number of characters in the string. In this case I have used another free zero page location ($FA), to store the final value of the Y register and then add the contents of $FA to the low byte of our vector $FB. This allows us to create a whole table of text strings, with the carriage return as the terminator.

```
TEXT INPUT ROUTINE

$0C00 LDY # $00     ; Set counter to zero
$0C02 JSR   $FFCF   ; Call CHRIN
$0C05 STA  ($FB),Y  ; Store text at vectored address
$0C07 CMP # $14     ; Was delete key pressed ?
$0C09 BEQ   $0C13   ; Branch forward to address $0C13
$0C0B INY           ; Increment counter
$0C0C CMP # $0D     ; Carriage return entered ?
$0C0E BNE   $0C02   ; No the back for next character
$0C10 JMP   $0C18   ; Jump to final part of routine
$0C13 DEY           ; Deduct one from counter for delete
$0C14 CPY # $00     ; Check counter is not back to zero
$0C16 BNE   $0C02   ; No then back for next character
$0C18 STY   $FA     ; Store counter in zero page
$0C1A LDA   $FB     ; Get vector low in accumulator;
$0C1C ADC   $FA     ; Add counter to vector low;
$0C1E STA   $FB     ; Store in vector low
$0C20 RTS           ; Return from subroutine
```

We can now use the same mode of addressing to print out the contents of each string. You will of course have to reset the zero page vectors $FB and $FC back to the start of the text table. Line 30 of the Basic program will do that providing the variables AH and AL have remained unaltered.

TEXT PRINT ROUTINE

```
$0C21 LDY # $00      ; Set counter to zero
$0C23 LDA ($FB),Y    ; Get character from table
$0C25 JSR $FFD2      ; Call CHROUT
$0C28 INY            ; Increment counter
$0C29 CMP # $0D      ; Carriage return ?
$0C2B BNE $0C23      ; No then back for next character
$0C2D STY $FA        ; Store counter in zero page
$0C2F LDA $FB        ; Get vector low in accumulator
$0C31 ADC $FA        ; Add counter to vector low
$0C33 STA $FB        ; Store in vector low
$0C35 RTS            ; Return from subroutine
```

The TEXT PRINT routine is alright if you simply want to print out the text strings in sequence, but not if you want to locate and print a specific string from within the table. To achieve this, all that is required is the setting up of another table containing the high and low vectors for each string. Each time the text input routine is called you could add the $FB and $FC vectors to a table, and then produce a modified text print routine using that table to locate the string. And now comes the challenge.

The methods for storing and retrieving text which have been discussed in this article could easily form the basis of a Text Editor, which could be used to prepare text strings for printing by a machine code program. This would be a worthwhile addition to all the software libraries, and to that end I am looking for members who would be willing to undertake the task of producing a version for each machine. The main part of the program should be coded in Basic, so that the minimum amount of RAM normally used for machine code programs is infringed apon. So if you feel up to the challenge write and let me know, and hopefully we will end up with a program that every member who owns an eight bit machine can enjoy. If you have any problems with any of the Kernal routines that have been discussed so far then you can write to me at the following address:

9 Haldane cresent, Kirkton, Dundee, Scotland. DD3OJN.

Please remember to include a stamped addressed envelope, and enclose a listing of any routine which is causing problems.

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TRANSFERRING VIZAWRITE FILES

by WGC Austin

Following my request for help to transfer my Vizawrite files (Vol 10, No 4, p 486), I had a flash of blinding inspiration and looked through Raeto West's book (Programming The Commodore 64) for some guidance. I eventually found the clues on page 556 and in Appendix H. Viza also helped by providing clues in the Vizawrite manual as to how the data was stored in the disk file. I first read a short Viza file, byte by byte, to confirm that there were no tokenised space-saving methods used. The bytes seemed to be stored in a fairly straightforward way and so I developed the following simple program.

It is not a program that demonstrates the programmer's art and no doubt some would want to check the disk read error channel at frequent intervals. Others will make the conversion matrix (t%()) less crude. I can easily use the same program with few changes to transfer Viza files to PETSCII and ASCII.

```
120 print chr$(14);chr$(147);chr$(143)
130 close 3:close 8:close 15
140 dim t%(255)
150 :
160 rem swap from Viza to CBMscii
170 for j = 32 to 64:t%(j) =    j:next j
180 for j = 1  to 31:t%(j) = j+64:next j
190 for j = 65 to 96:t%(j) =j+128:next j
200 t%(220) = 13: rem carriage return
210 :
230 rf$="Sherbert":rem vizafile to read
240 :
260 wf$ = left$(rf$+"############",14)+".s": rem seq file to write
270 :
280 open 15,8,15
290 :
300 print chr$(147);"Viza to seq file transfer"
310 open 3,8,3,"0:"+rf$+",p,r"
320 open 8,8,1,"@0:"+wf$+",s,w":rem if it exists overwrite it
330 :
340 rem trash the viza header
350 for i = 1 to 199: get#3,b$:print ".";: next i
```



```
360 :
370 print chr$(147)
390 get#3,b$ rem: now have a proper byte
400 if b$=""then390
410 :
420 rem is it end of Viza file?
430 d = asc((b$) + chr$(0))
440 if d = 255 then 570: rem eof
450 if d = 0 then 390:   rem null
460 rem is it a tab?
470 if d= 219 or d = 221 then print#8," ! ";:print" ! " ;:goto 390
480 rem is it unprintable in polite company?
490 if d > 221 then print#8,"<*>";:print"<*>";:goto 390
500 d$ = chr$(t%(d))
510 print#8,d$;:printd$;
520 :
540 goto 390: rem have another byte
550 :
570 close 3:print#8:close 8:close 15:end: rem end it all nicely
```

The program was written to run on the C64 and Plus4 and hence no fancy pokes, which might have made transfer a little quicker, were included. I opted for using the Viza file name at line 230 rather than inputting it interactively. The sequential file has the same stem as the Viza file plus some hashes as padding so I can easily recognise the file amongst my unstructured collection of disks. The rest of you will no doubt have all your files neatly catalogued and all in apple-pie order. But then I wrote the program for my situation!

I open the disk command channel and then forget it! Line 350 reads the Viza header and prints dots on the screen to show it is doing something. The variable 'd' is set to each byte's numeric value. It is tested for the end of file marker (255) and if so, the files are closed. If it is a nul byte the next one is read; for tab markers, a symbol is substituted and for unprintable characters a different marker is substituted. For those who need to know when text is centred or subscripted etc. a greater number of different markers will be required.

I have used variants of the program to read Viza files to the screen, to transfer them to EasyScript and PlusScript as well as to transfer Viza files to a PC via the RS232 port/user port (Vol 10, No 4, p.462). Incidently, this was written as a Vizawrite file and transferred to a sequential file using a modified version of the above program and edited in PlusScript. Perhaps this will encourage others to play around with converting files in one format to other formats.

ADVENTURES WITH A BRIDGEBOARD

by Dennis Gortmans

I originally bought a Bridgebard for my Amiga 2000 to enable IBM PC compatible add on cards to be used. Cards for the Amiga were either non-existant or twice the price of those for a PC. The card I wanted was a 32Mb Hardcard to enable large files and some large packages to be mounted.

After my name was in the March/April issue, a number of questions were sent to me regarding the mounting of a Hardcard on the PC bus and how to enable the Amiga bus to access it via the Bridgeboard. At that time I did not have my Western Digital Hardcard so I did my best to answer using information from the A2088 Manual, which not everyone had. It is suprising that a Bridgeboard can be sold without technical manual being included.

As I can take advantage of the PC emulation with the Bridgebard, I can take work home, if I am in the mood. I also take advantage of the large number of PC programs available such as: public domain; shareware; and commercial software. The contrast in speed between a PC and some systems I use, has caused some frustration, so I looked at speeding up the PC emulation. I considered turbo boards, but I decided to buy a 8087 mathematical co-processor as the best improvement for my purpose. My work is mainly mathematical, making use of spreadsheets or compilations of engineering procedures sourced in Fortran or Pascal.

I received a letter from Finland asking for information about turbo boards. An attempt had been made to use an Orchid "Tiny Turbo" accelerator card, but this card turned out to be incompatible. A conversation with Mr Pocock of CBM at Slough confirmed that turbo boards that plug into the 8088 CPU socket are unlikely to work. His suggested that the easiest way to improve speed would be a trade in for an AT Bridgeboard which would be soon available. While I was putting this information together, I came across a file called "Bridge-1" on the Irish BB, DUBBS. This file was made up of messages taken from 'BYTE Information Exchange (BIX)', all dealing with some aspect of the Bridgeboard. On 'Turbos'it gave an explanation of what was required for them to be compatible. The important considerations are as follows.

The Bridgeboard uses the Faraday chipset, which means that plug-in cards that don't work with Faraday based PC clones won't work with the Bridgeboard. There is some difference in the way Faraday chips handle DMA that's different from that used by IBM, and this interferes with the way some speedup cards grab control of the bus. There has been at least one 386 card

tried and although its name is not given, it did manage a number of benchmarks, one taking 0.77 seconds in comparison to 2.5 seconds on a 4.77Mhz PC (sans co-processor). However this card has not been generally checked out. There was also a rumour that an Orchid 286 card would work as this did not require removal of the 8088.

The Bridgeboard does have a number of limitations when emulating a PC. The board cannot produce sound and so, together with the slow CGA, is not suitable for zapping type games. A voice can be given by connecting a small speaker to a socket on the bridgeboard. The speaker must be mounted elsewhere as there is no room between the boards. The board cannot access the serial port on the Amiga 2000. This causes me some problems when I want to attach a modem and run communication programs. I have now obtained a multifunction I/O card that plugs into the PC bus, and this provides a serial port, a parallel port, a clock, and a games port.

Before obtaining the I/O card, all communication took place,with the modem attached to the Amiga serial port. The downloaded files were appropriate to a range of computers and I used the Bridgeboard to transfer to disks of the correct format. I can transfer data satisfactorily by using the AREAD and AWRITE on the PC utility disk to transfer PC files across the Bridgeboard and onto the 5.25 inch drive. Also by using the suitable software it is possible to transfer files for the other machines onto disks in their formats. I have used BEEBDOS on a PC to transfer back and forth to BBC format disks.

There are other transfer programs available. I started active domestic computing using a C64 together with a comprehensive range of peripheral devices. Some time ago I obtained from ReadySoft in the USA, a copy of their '64 Emulator', to run on the Amiga. Version I enabled C64 devices to be daisychained directly to the Amiga by a cable into the parallel port and accessed when the emulator is running. Version 2 provided a better system by means of programs that enabled the Amiga to address the C64 devices without going into the C64 emulation mode. This was a considerable improvement as multitasking is lost by going into the C64 emulation mode.

The Bridgeboard has become an essential component. I have also the advantage of hardware to incorporate a hardcard and an I/O board. I might add more memory and bring the total to 1Mb for use by the PC. With the transfer software available, it has not been necessary to physically link different machines together using the RS232 link. It has been much easier producing disks in the correct format. At present I have moved files backward and forward between Amiga, PC, C64, and BBC. I have future plans for extending the list to cover CPM formats, including those used by the C64 and C128.

PAGING PRESTEL

by David Martin (01 999 7086)

The re-vamping and editing of the ICPUG database has been easier than I expected, thanks to Jenny Goldsmith for supplying me with a list of ICPUG frames that are on Prestel. Details of the regional groups have been updated and information on Special Interest Groups has been added.

The sub indexes for each area within the database have been moved up a level to release more frames. They are now to be found on pages 81021321-29.

Regional organisers please contact me if you wish to publicise your group's activities on Prestel. There are frames available for features or reviews by members. Contact me if you would like to contribute. All I can offer is fame, glory, and up to 10 frames.

If you no longer subscribe to Micronet or Prestel, the ICPUG database can also be found on the Y2 bulletin board. Diamond Database can be accessed with Viewdata software. Unregistered users should enter 1#1# to log on. Keyword ICPUG will take you to the ICPUG database at 81023.

As well as the ICPUG database, there is Amiga telesoftware available to registered users. Facilities on the system include mailbox, instant chat, two chatlines and a section concerned with MIDI. The number for Diamond is Watford (0923) 228558.

Looking around

I have been looking at what is available on Prestel of interest to Amiga owners. First stop (of course) is the ICPUG database, which I described in the May/June newsletter. The offical Micronet "Amiga/ST" database has reviews and features on both the Amiga and ST. A coding system of A and S indicates which machine an item is about. There are usually two or three reviews added each week, and a letter carousel with daily updates has been introduced.

Andy Waller edits the Commodore magazine area "Solely CBM" formely called "Solely64 and More". Although "Solely CBM" has hints, tips and advice on most Commodore machines the majority of new material is related to the Amiga. This is also reflected in the letters carousel. Although a chatline has been opened specifically for Commodore users, many Amiga owners can be found after midnight 'chatting' on the Micro Chatline.

Telesoftware for the Amiga has just begun to appear on Micronet. These programs are public domain and free. I doubt there will be as many on Micronet as there are on Compunet unless Micronet open a gateway to a larger storage system, (this may have happened by the time you read this).

Two other areas that may be of interest are PC SUPPORT and 16/32, the latter being an ST database. Outside of Micronet in the Viewtel database is Viewsoft, an area for 16 bit computers. Edited by Peter Penn, Viewsoft includes reviews of Amiga software, news and letters. Viewsoft starts at page 2022620.

Amiga/St, Solely CBM and 16/32 can be found with the keyword "AMIGA" or at page number 800916. Keyword "PCSUPPORT" will take you to the PC SUPPORT database; enter "MCHAT" for Micro Chatline. Entering "ICPUG" will take you to frame 8102132, which is the front page of the club's database.

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BYTES ON THE MOVE

by Ian Cassidy

When it comes to developing short machine code routines, I have found the machine code monitor resident in the Commodore 128 ROM to be reliable and easy to use. Once I have a routine working satisfactorily I like to document it for future reference, and then turn my attention to converting it to run in Commodore 64 mode. This used to mean powering up in 64 mode and loading another assembler. The only problem when using this method of translation was remembering the differences in syntax between the two assemblers, which often led to a frustrating search through the appropriate manual.

The method I employ now is probably faster, and is certainly more convenient. Using the built-in monitor I assemble the code in the area set aside for the RS232 buffers from $0C00 to $0DFF, which is free when a modem is not in use. On completion, it is then possible to transfer the routine, using the monitor's transfer command, to the area from $C000 onwards, the area often used for machine code on the 64. It is not possible to execute the code in that area on the 128. All that remains now is to disassemble the code, change any absolute addressing references within the routine, and then save the resulting code to tape or disk. The text input routine written for the Kernal Calls article in this newsletter is a perfect example of the type of routine which can be transferred with relative ease.

ICPUG REGIONAL GROUPS

by Brian Wise (Regional Organiser)

Location	Organiser	Phone	Meets
Ayr, Scotland	John Smith	0292 261408 Ext.202	3rd Wed.
Basingstoke, Hants.	Colin Smith	0256 55262	Ist Mon.
Bury St. Edmunds	Alan Morris	0284 69661	2nd Wed.
Camberley, Surrey	Dick Faulder	0252 713818	3rd Wed.
Canterbury, Kent	Ron Moseley	0622 37643	1st Wed.
Coventry, West.Mid.	Will Light	0203 413511	1st Wed.
Derby	Ray Davies	0332 41025	2nd/4th Tues.
Dublin	Geoffrey Reeves	0001 883863	
Durham	Jim Cocallis	091 3867045	
Edinburgh	Martin Lowe	031 557 4242	
Hertfordshire (Stevenage)	Brian Grainger	0438 727925	1st Fri.
Kilmarnock, Scotland	John Smith	see Ayr	1st Wed.
Liverpool	John Swallow	05l 52l 6910	Wed.termtime
Macclesfield	Melvin Mayers	0625 32852	Alt. Tues.
Mildenhall, Norf.	Joe Bowman	036283 8439	
Min. of Defence	John Jeoffrey	01 218 0988	Monthly

Mid. Thames Group (Reading)	Brian Jones	0734 661494	2nd Thurs.
North Gloucester	Closed Temp.		
North Hants (Farnborough)	Ron Geere	0256 26830	3rd Wed.
Paisley, Scotland	Charlie Heath	04l 889 8929	
Sheffield	Phil Hicks	0742 682275	
Solent (Titchfield)	Anthony Dimmer	0705 254969	1st/3rd Tues.
South East Group (Biggin Hill)	Brian Wise or John Bickerstaff	0903 788559 01 651 5436	Thurs. except Ist
South West Group (Charmouth/Exeter)	Peter Miles	0297 60339	
Swanton Morley Norf.	Joe Bowman	036283 8439	
Watford	Rod Eva	0923 50161	3rd Wed.
West Berlin	Capt. R. Harrison	010 49303094476	
West Riding Group (Wakefield)	Kevin Morton	0532 537318	1st/3rd Wed.
Wigan	Bryan Caswell	0942 213402	
Wolverhampton	Mr. Whiteley	0902 733332	
Disabled Group	David Bate	0296 842707	
1520 Plotter Group	John Bentley	06286 65932	

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Special prices to I.C.P.U.G. Members

Amiga A500 including A520 TV modulator	£349.95
Amiga B2000	£952.20
XT Bridge board including 5.25" disk drive	£431.25
A2090 20mb Hard disk and controller card	£423.20
A1010 External 3.5" Disk drive	£126.50
A501 512k RAM expansion	('phone for current price)
A520 TV modulator	£19.95
PC10 Single floppy	£549.00
PC10 Double floppy	£679.00
PC20 Single Floppy with 20mb Hard disk	£979.00
PC40 With 20mb Hard disk	('phone for current price)
PC40 With 40mb Hard disk	('phone for current price)
PC1 512k including monitor & business software	£299.95
1571 Double sided 5.25" disk drive (few only)	£199.00
1581 Double sided 3.5" disk drive (few only)	£107.00

Please confirm all orders through Mr.J.Bickerstaff, National Chairman, I.C.P.U.G.
We are able to offer an extensive range of software to suit most applications, and will try and better any price quoted by other dealers, please call and see if we can furnish your needs.....

Cavendish Commodore Centre
66, London Road, Leicester LE2 0QD
Telephone LEICESTER (0533) 550993

C-64 NEWS

by David Miller, C-64 Libraries Organiser.

Once again I bring to your attention the old problem of postage and packaging. Members have been sending disks with poor packaging and less than minimum stamps - please make sure that sufficient postage is provided for the return journey. One librarian received a packet with only two 3p stamps.

It is with regret that Nigel Corry, who for the last four years has copied disks for members P-S, has decided to hand over the reins. Thank you for all your hard work, Nigel. Taking his place is M.J. Mann "Fred" from Norwich, address inside back cover.

This month we have two new disks, both from members. Games disk #5 from George Crawshay and a new Graphics disk #4 from Mike Benn. Well done to both of them for all the time spent bashing the keyboard. Next time I will be including an ICPUG Assembler from Paul Bell. It is not included this issue as it does not fill a disk and time is short before copy date. If anyone would like a copy now, send the usual requirements to me and I will supply it.

```
0  icpug graphics   #4 2a
30   autoboot          prg
6    printbootdata     prg
8    art gallery       prg
40   adv.graphic       prg
40   cable car         prg
40   diskdrive         prg
40   game background   prg
40   holly             prg
40   king 'tut'        prg
40   lake              prg
40   river             prg
40   roller            prg
40   star base         prg
40   star base         prg
40   tiger1            prg
40   tiger2            prg
40   title page        prg
40   white house       prg
1    mc                prg
2    boot.data         seq
9  blocks free.
```

```
0  icpug games      #5 2a
11   autodoc           seq
30   autoboot          prg
6    printbootdata     prg
56   can't stop        prg
38   sevens            prg
35   black box         prg
24   black box ins     prg
51   wordsearch        prg
29   acquire instrux   prg
88   acquire           prg
21   1-game            prg
18   property instrux  prg
73   property          prg
122  crude 2           prg
1    crude             prg
44   crude instrux     prg
2    boot.data         seq
17 blocks free.
```

128 LIBRARY

by Chris Wright.

Since the last newletter I have added more 128-mode disks to the library. We now have over 60 disks with more on the way. The new catalogue disk has an auto-boot utility which will print or display the contents of each disk in either 40 or 80 columns. It is included on all the new 128-mode disks and allows you to cursor down to your selection and hit <RETURN> to run it. A further addition to the library is a collection of CP/M utilities taken from various disks and placed onto one. This acts as a 'starter' disk for those new to CP/M. It is ancillary to the three starters disks already in the library.

Bob Dally has taken over 1581 copying. Please send him 128-mode disks unformatted. Format CP/M disks from 1581 mode, NOT in Epson QX mode, and clearly state the selection of library disks you want placing on the disk.

1581 owners often bemoan the use of their drives with Superscript. Other WPs can access the drive, but one thing defeats us all. Partitions. This facility allows for more entries on the disk, and the details of how to use it were supplied by Michael Doncaster. In Superscript, type F1, D, U, Other and enter /0:partition name. You are now in the chosen partition. I set up a disk with four partitions for different uses. Then I ported across all my files and it worked. Thanks Michael. This also works with any WP that allows disk commands. I will try this on Superbase V3.0 when it is released on the 1581.

Tom Cranstoun has now got Superbase 128 working correctly on the 1581. Precision are testing it on all drives, and are also going to see if it can be used with the 512K RAM expansion. If so, the program would be a vastly superior product to the original - and that was fantastic. Of the major improvements you can now export and import between drives ('export' and type 9:exportfilename or 'import' and 9:importfilename). There is also a 128 version of the Utility program, and a few changes you will probably never notice. However, this is not without a price - the loss of the 1571 burst mode. The 1581 runs in fast mode all the time and does not support burst mode. I have used a pre-released version on my 1581s and can tell you it is fast. Very fast. And all that storage! I anticipate a large demand for 1581s once SB is released.

Returning to Superscript, Michael Doncaster has kindly sent me a S/Script MPS1000 printer driver for serial and Centronics in IBM mode as an IBM 5152+. This will be put on the new disk Peter Hauke is releasing for S/Script and S/Base users. If anyone who cannot wait for that disk, send me a stamped and addressed envelope and I will send you the documentation.

PLUS 4 LIBRARY

by Richard G Hunt

The Plus 4 library contains the following diskettes:

Catalogue disk	American 1
Utilities	American 2
Other	American 3
Games	American 4
Financial	Plus 4 RAM listings
Mostly Math	

The RAM listings disk, which contains Script/Plus sequential files of the Plus 4 low RAM assignations, now features Script/Plus files about Script/Plus itself. Complete directories are on the catalogue disk in program and sequential form. Specialist needs (communications, assembler, and Forth etc) can be met on specific request to me as well (disk only).

New disk copier!

To date I have collated material, prepared disks, and done all the copying myself. This takes up much of my time and leaves little for writing articles and undertaking programming projects. Now, a member has kindly offered to take on some of the copying tasks, and I would ask you please to note the following arrangements which have immediate effect:

Plus 4/C-16 copying disks only - surnames A-M: Richard G Hunt
Plus 4/C-16 copying disks only - surnames N-Z: Joe Shirras
Plus 4/C-16 copying tapes only - all names: Richard G Hunt

All correspondance on Plus 4 matters should be directed to RGH. Joe will pass all letters on to me, delaying a reply. Please send all correspondance separately because copy requests requiring a reply are left to last. I also warn you - I know nothing about interfaces, printers and their workings, and other technical matters. Such things should be addressed to the Technical Coordinator.

My address is on the back cover. Joe Shirras' address is:

High View, 69 Ighten Road, Burnley, Lancashire BB12 0HP

It is my intention to reorganise and recatalogue the existing library diskettes. I have a few new programs for inclusion but not enough for a complete new disk of, for example, Utilities (but see below). Start typing in programs and send them to me on disk or tape for the library!

Lastly, some more good news: a new library diskette is ready for release - GAMES2. Here is most of the directory and Disk Notes I have included on it. By the time this magazine is out there may be a little more on it as well. Thanks to all those who have sent in contributions!

```
0 R"LIB.GAMES       " 02 2A
10   "DISK.NOTES.3+1"  SEQ
3    "DISK.NOTES.S/P"  SEQ
0    "----------------" PRG
5    "OBSTACLE"        PRG
5    "SLIDING NUMBERS" PRG
20   "PICK A LETTER"   PRG
23   "WORD JUMBLER"    PRG
0    "----------------" PRG
10   "PORTER"          PRG
20   "PORTER.DAT"      SEQ
7    "ARIADNE"         PRG
0    "----------------" PRG
4    "SILLY PROG"      PRG
24   "BRITAIN QUIZ"    PRG
9    "DARTS SCORER"    PRG
0    "----------------" PRG
14   "BARROWS.INST.3+1" SEQ
14   "BARROWS.LAB.3+1"  SEQ
13   "BARROWS.INST.S/P" SEQ
3    "BARROWS.LAB.S/P"  SEQ
19   "WHITE BARROWS"    PRG
0    "----------------" PRG
32   "21"               PRG
32   "HEUYCOBRA"        PRG
13   "PARATROOPER"      PRG
24   "FROG"             PRG
9    "MAZE"             PRG
8    "JOTTER"           PRG
74   "BUTCH AND SLIM"   PRG
52   "LABYRINTH"        PRG
12   "CAPTURE"          PRG
7    "BRICK"            PRG
198 BLOCKS FREE.
```

DISK NOTES: GAMES DISK 2 from ICPUG

Play and enjoy games from afar: Porter and Ariadne come from Czechoslovakia. Obstacle and Sliding Numbers were sent from Finland. White Barrows was translated by me from a program for the Acorn Atom (remember what that was?) Some games were translated by me from Dutch, but not too well I suspect. Most have instructions, if you need them.

If you find any errors or improvements to White Barrows (or other) please send details to me. Thanks.

***

DISCOUNT CORNER

by John Bickerstaff

Please refer to page 92 in the January/February issue for General Information - including when you can contact me on the telephone - overseas members please note that your call cannot be returned so please call again. For Other Discount Facilities please refer to pages 92 to 96 in the January/February issue, pages 225 & 226 in the March/April issue, pages 362 & 363 in the May/June issue and pages 478 & 479 in the July/August issue.

Do look at the items in this edition. Details sometimes change between issues.

CBM hardware is available to members at discount rates. Call for details. The 1571 has been withdrawn, now the 1581 is to be withdrawn. Still no news of the release date for WB 1.3 nor the AT Bridge Board for the Amiga B2000.

Ariadne Software Ltd of 273 Kensal Road, London W10, 'phone 01-960 0203 will be issuing Kickstart No.2 at the turn of the year - price not yet set. Meanwhile edition one is still available to members at £9.50 plus £1 towards postage and packing. They supply the Genlock at 10% discount to members, this discount also applies to the Amiga 2000 machines. For special prices on other products please call them stating your membership number number.

Brain Boxes of Unit 3G Wavertree Technology Park, Liverpool L7 9PF phone 051-220 2500 supply their products at 15% discount to members. Their range includes the IEEE interface with expansion socket for the 64 & 128 machines at £69.95; a laboratory edition with IEEE connector and gold-plated edge connections but without expansion socket at £109.95; an RS232 interface for the User Port complete with software at £49.95; a standard PC card providing IEEE output at £249.95 or a laboratory type card with driver software at £320.00; PET to IEEE cable at £19.00 or IEEE to IEEE cable at £39.95; and their standard PSI box at £299.95 or IEEE controller laboratory type for use when connecting cables exceed 20 metres in length at £399.95. All these prices are subject to the members discount of 15% plus VAT, post paid.

Cavendish Commodore Centre have available a few 1571s. 1581s are to be withdrawn from the UK market so a special price for members is being worked out. Orders for either must be through me but make your cheque out

ICPUG Software Libraries

Organiser: Joe Griffin, Clovelly, Lynwick St, Rudgwick, Horsham, W Sussex RH12 3DJ

Please remember that the libraries are operated on an entirely voluntary basis and, unlike many of the American User Groups, ICPUG DOES NOT CHARGE A COPYING FEE.

The Libraries contain PUBLIC DOMAIN programs from a wide range of sources, including our own members and other user groups. WE DO NOT SUPPORT SOFTWARE PIRACY.

Members may obtain ALL the library material. In order to retain a measure of control over the work-load imposed on the Copiers, however, we do restrict the amount of material that may be obtained on any one request.

Disk users may obtain up to two disk copies at a time (Amiga five).
Tape users may obtain up to four programs, from any one disk.
(Please use a C-60 or C-90 tape ---a C-15 or C-30 may be too short.)

To obtain copies of catalogue or library disks, please send:

A statement of what you want
Your membership number
Disks (stating FORMAT --- type of drive --- required) or Tape
We will NOT use a disk as a 'flippy' as it can damage the disk drive
Pre-addressed reusable packaging suitable for return
There have been occasions when disks have arrived bent in half!
Please ensure that packing is adequate
Return postage --- SEND STAMPS
Overseas members should send International Reply Coupons
(allow at least one-and-a-half IRCs per disk sent)

PET --- Joe Griffin (see above)

VIC --- Joe Griffin (see above)

COMAL --- Brian Grainger, 73 Minehead Way, Stevenage, Herts SG1 2HZ

1520 Plotter --- WGC Austin, School of Geography, Faculty of Humanities, Newcastle Polytechnic, Lipman Building, Sandyford Rd, Newcastle upon Tyne NE1 8ST

1520 (Tape) --- John Bentley, 38 Conway Rd, Taplow, Maidenhead, Berks SL6 0LD

PC Organiser: Tim Arnot, 68 Cowley Road, Littlemore, Oxford
Please always send your requests to the copier listed below who deals with the Catalogue Category of material you want. Catalogue from John Robinson, 1 St James Court, Cliff Gardens, Scunthorpe, S. Humberside DN15 7PR

A--D Henry Velleman, 52 Ventnor Drive, Totteridge, London N20 8BS
E--O Peter Crowder, 27 Crawford Drive, Liverpool L15 8AE
P--Z David Harrow, 28 Phoenix Drive, Wateringbury, Maidstone, Kent ME18 5DR

Software Libraries (cont.)

Plus 4 (& C-16) --- Richard Hunt, 45 Cumberland Rd, Bromley, Kent BR2 0PL

C-64 Organiser: David Miller, 38 Exeter Gardens, Ilford, Essex IG1 3LB
Please send requests to the copier listed below who deals with the first letter of your surname

A--B Joe Quintin, 7 Cotterhall Court, Clover Hill, Bowthorpe, Norwich NR5 9AZ
C--F R Burns, 48 Grasmere Rd, Royton, Oldham, Lancs OL2 6SR
G--K Norman Wright, 73 Queens Road, Littlestone, New Romney, Kent TN28 8LS
L--O James Mason, 35 Woodburn Drive, Dalkeith, Midlothian, EH22 2AZ
P--S MJ Mann, 502 Dereham Road, Norwich, Norfolk NR5 8TU
T--Z Peter Crowder --- see PC Library, E--O, opposite

Germany (inc. BAOR) Lt AR Perkins, 11 Trenchard Rd, RAF Digby, Sleaford, Lincs

Overseas (other) & 8050/8250 --- Joe Griffin --- see opposite

128 --- Organiser and software collator: Chris Wright (see below), 37 Cecil Street, Lytham, Lacashire, FY8 5NN, England. Please send requests to the librarian listed below who deals with the first letter of your surname

A--C Bill Gardner, 156 Henwood Rd, Compton, Wolverhampton WV6 8PA
D--J Tom Nuttall, 43 Renshaw Drive, Bury, Lancs, BL9 7NJ
K--R Robert Dally, 6 Derwent Crescent, Clitheroe, Lancs, BB7 2PW
S--Z Dave Tew, 4 Acombe Cresc, Hambrook Pk, Charlton Kings, Cheltenham, Glos GL52 6YH
Overseas (All) Derek Clifford, 36 Hanover Avenue, Feltham, Middlesex, TW13 4JW
1581 requests to Bob Dally (see above)
128 BULLETIN BOARD on 0902-745337 (24hrs) see p402 (1987)
(PC users can also log onto this board)

Amiga Organiser: Peter Miles, The Queen's Armes Hotel, Charmouth, Dorset DT6 6QF.
Write to him with/ about your programs. Disk copies should not be requested from the librarians.

Amiga Disk Copiers: (Not more than 5 disks at one time). For specific ICPUG library disks and the catalogue of Readme files (ie contents), please send your requests to the copier who deals with the first letter of your surname. ALSO for the New Amiga Users Set of 5 disks.

A--I David Annal, 142 Windermere Road, Norbury, London, SW16 5HE
J--R Peter Reeve, 2 Court Road, Tunbridge Wells, Kent TN4 8ED
S-Z Chris Wright (see 128 above)

Public Domain (non-ICPUG) Amicus disks & the catalogue of 'Readme files' (ie the contents), may be obtained solely from Ray Burt-Frost, 169 Dale Valley Rd, Shirey, Southampton SO1 6QX

Public Domain (non-ICPUG) Fish disks and the catalogue of 'Readme' files (ie the contents) may be obtained from the copier named below who deals with the first letter of your surname.

A-K Eddie Moore, 4 Gosling Close, Hatton, Warrington, Cheshire WA4 5PB
L-Z John Grove, The Cobnuts, Cobs Close, Ightham, Sevenoaks, Kent TN15 9DB